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ABSTRACT

A role-making model of the leadership process is tested and refined within a major university setting. The model assumes that administrative leaders attempt to reduce their costs and increase their benefits by differentiating among unit members in the accomplishments of unit tasks. As a consequence of this differentiation throughout departments, the organization as a whole is transfused with new sets of overlapping, dyadic interdependencies. Over a 10-month period, the vertical exchanges between managers and their leaders and between leaders and their administrative superordinates were monitored employing an "open-systems" research strategy. The units of analysis being leader-member dyads, information was collected from both parties to each dyad employing intensive and extensive patterned interview procedures. Results suggest that exchange dependencies routinely develop within managerial units and that these dependencies influence the behavior, attitudes, and perceptions of both parties to dyads as specified by the role-making model. (Author/LBH)

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FINAL REPORT

ROLE-MAKING PROCESSES AND UNIVERSITY ADMINISTRATION

National Institute of Education
Project No. 3-0173

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SUMMARY

A role-making model of leadership process is tested and refined within a major university setting. The model assumes that administrative leaders attempt to reduce their costs and increase their benefits by differentiating among unit members in the accomplishment of unit tasks. As a consequence of this differentiation throughout departments, the organization as a whole is transfused with new sets of overlapping, dyadic interdependencies. Moreover, Likert's notions of the importance and functions of "linking-pins" were incorporated into this role-making model and tested.

Over a ten-month span, the vertical exchanges between managers and their leaders and between leaders and their administrative superordinates were monitored employing an "open-systems" research strategy. The unit of analysis being leader-member dyads, information was collected from both parties to each dyad employing intensive and extensive patterned interview procedures. A team of psychologists, specifically trained in the use of a series of experimental interviews, collected data from all managers within three service departments. Various quality control procedures were designed into the study to maintain consistently high quality data.

Results suggest that exchange dependencies routinely develop within managerial units and that these dependencies influence the behavior, attitudes, and perceptions of both parties to dyads as specified by the role-making model. In addition, the results support the predictions of the model regarding the contribution of exchange dependencies which take place in the hierarchy immediately above that of a focal manager upon the behavior, attitudes, and perceptions of that focal manager. Dyadic exchanges to which a manager is not a party can contribute to organizational climate of that manager's role. Turning back to dyadic exchanges to which managers are members the quality of these exchanges vary considerably. At the highest level, unit members (managers) are committed to unit success and are willing to make extra contributions toward this end. This commitment is rewarded by the leader through mediation of positional and personal resources. At the other extreme, dyadic relationships are marked by impersonality and the exchange of contractually obligated behavior. Finally, the implications of this research for team building are discussed in terms of organizational process and theory.

STATEMENT OF THE PROBLEM

The work of organizations is accomplished through the performance of roles by organizational participants. These roles are sets of behaviors that are performed by members in particular positions. Organizations are designed for efficient operation by dividing complex tasks into specialized activities, assigning these activities to particular roles, and integrating the outputs of these activities into a final product or service. An organization may operate at an extremely efficient level due to superior technology, advantageous positions in its various input and output markets, and a very appropriate type of role-making system for its participants. Consequently, it is of practical as well as theoretical significance to understand the role-making systems within organizations (Graen, 1975).

Why Study Role-Making Systems?

The challenge of transience demands the invention and utilization of new organizational forms. These new forms will be designed for decisive and immediate adaptation to the contingencies of their environments. As Bennis (1964) has pointed out, survival of organizations in the future will depend upon their ability to cope and adapt to meet the changing demands of their environments. In sum, the criteria for evaluating the adequacy of organizational designs are undergoing basic revision. The bureaucratic model of organization, although it has served rather well until the second half of the twentieth century, has become increasingly incompatible with our changing environments. This model works best for harnessing routine, predictable human and mechanical energy in situations involving stable environmental inputs and demands and with a work force that has been socialized to accept the legitimacy of bureaucratic power.

Although the present dysfunctions of the bureaucratic model are many, the future dysfunctions of this organizational form may lead to its revision. The primary characteristic of this organizational form is its control of events. The model assumes that there exists "one best way" of performing any given function. Once this one best way has been accepted, all structures and functions are programmed in detail. Unknowns in the situation are filled by simplifying assumptions: The environments of the organization are assumed to be stable; the complexities of the human participants are simplified through the mechanism of "partial inclusion" (Katz and Kahn, 1964). According to this mechanism, human participants are required to leave most of their personality outside of the organization. Only thosecapabilities of the participants which are specified by the formal role are required and allowed expression. Thus, the program is assumed to be complete. To ensure that only the specified events occur and in the prescribed manner, elaborate and expensive control systems are established. Hierarchical and overlapping monitoring and authority systems are devised to produce "fail-safe" and "zero defect" outcomes. Overpowering reward and punishment systems further ensure that the details of the program will be performed religiously.

This organizational form by overcontrolling events within the organization produces inefficiency and nonresponsiveness. Organizational actions crystallizeinto hardened habit systems that are nonadaptive and performance narrows in on the minimum standards of effectiveness. Only those behaviors formally prescribed are performed by the participants; only defensible actions are taken; standard procedure becomes the "Bible," and change in any aspect of the program meets with resistance. In short, like most single-purpose machines, the organization designed along the lines of the bureaucratic model rapidly become obsolete with changes in technology and other environmental conditions. Although the need for modifications of this organizational form is widely acknowledged, careful research is required to suggest and program workable changes.

Role-Making and Leadership

A fixed-role model is compatible with the Bureaucratic theory of Max Weber. It assumes that the interdependent behaviors of role incumbents can be completely programmed by sets of rules, precedures, and specifications. Once the organizational roles have been programmed, they are not subject to change. According to this model, the role system of the organization can be rational only if the established system is rigidly enforced. This model has enjoyed,until recently, acceptance without a major rival. Sociologists and psychologists alike have assumed the basic validity of this model in their research and theorizing.

A major rival of the fixed-role model has developed out of a series of studies on the role-making process. This so-called "role-making" model assumes that the interdependent behavior of people within complex organizations cannot be completely programmed in many cases due to inadequate understanding and lack of stability of the basic task processes. This model assumes that the matrix of demands of the organization and the involved participants in interaction over time produce the resultant roles. A central part of this role-making model is leadership.

Team Building

A leader, when given the opportunity, will build a team within his unit. His motivation for such an effort is assumed to be the desire to increase his benefits while decreasing his costs. That is, in order to accomplish the tasks of his unit a supervisor will tend to differentiate among his members. Some of these members will be seen to have the proper mix of competence, interpersonal qualities, and desire to take on added responsibility within the unit. Others will not meet these requirements. Those that do will be offered the opportunity to take on greater responsibility in the operation of the unit. Through the development of his team, the supervisor can accomplish at least three objectives. First, he can enhance the effectiveness of the unit through the delegation of tasks to those who are commited to the success of the unit. Second, he will be able to deal more frequently with those members with whom he is best

able to work. Third, he can utilize more of his own time in the development of his own position. To the extent that a supervisor can successfully build an effective team, he can enhance his own benefits and decrease his costs. To the extent that this team building activity can be accomplished throughout an organization, it will be in a better position to deal profitably with its environment (Katz and Kahn, 1966).

Dansereau, Graen and Haga (1975) investigation provided evidence to support the following propositions. First, managerial units routinely become differentiated into at least two groups. Second, this differentiation occurs rather quickly and can be detected in the variations of negotiating latitude perceived by unit members. Third, different levels of initial latitude lead, overtime, to the development of different types of leader-member exchanges. Under one type of exchange the behavioral norms include extra contributions to the unit by members in return for greater sensitivity, attention, and support from supervisors. This type of relationship was termed a leadership exchange, following Jacobs (1971), since the authors concluded that such an exchange would require the same techniques as outlined by Jacobs. Juxtaposed to this type of relationship were supervision exchanges. In these situations, the leader merely mediated the organizational contract to unit members in an equitable manner. Finally, these two types of exchanges led to very different outcomes for unit members. Leadership relationships resulted in greater satisfaction both with the work and with the superior than did the supervision relationships. Supervision exchanges also resulted in significantly higher levels of problems with supervisory practices than did leadership exchanges.

Although this initial study provided a consistent network of results, the present study was undertaken, in part, in order to increase our confidence in the generalizability of its results (Campbell and Stanley, 1963). The present study was formulated to replicate the initial work both in terms of the research design employed and the methodology. Thus, the same type of dyadic interview scheme was implemented, extending over approximately the same nine month period of the calendar year. The same number of data points were measured and many of the original instruments were utilized. This phase of the study produced the following hypotheses:

Hypothesis 1: Managerial units are differentiated into at least two groups based upon the distribution of exchange relationships between each member and the supervisor of the unit. The initial study found that only 15% of the units in the sample were homogeneous with respect to his relationship as perceived by members.

Hypothesis 2: Members reporting high levels of exchange with their superiors will also report receiving more attention from them. Supervisors will concur. The results of the initial study showed highly significant differences from the member's view-point ($p<.001$) and marginally significant differences ($p<.08$) based upon supervisors' reports.

Hypothesis 3: Supervisors will report that they provide higher levels of support to those members who contribute more to the unit. This result was only marginally significant ($p<.06$) in the initial study.

Hypothesis 4: Both members and superiors will report problems with supervisory practices which are inversely related to the level of exchange which exists between them. There will be a positive relationship between the exchange level and the amount of sensitivity which members report are shown to them by their superiors. The initial results showed significant differences ($p<.001$) in problems between the groups in both supervisor and member reports. The same level of significance was found in reports of sensitivity by members.

Hypothesis 5: There will be a positive relationship between the level of exchange and the amount of time members report spending on various activities. Only two of four such relationships were found in the initial study. Members with high levels of perceived latitude reported doing more communicating and administering ($p<.01$). Further, these same members will also report that they are more able to determine the nature of their roles than other unit members.

Hypothesis 6: The outcomes accruing to members will be positively and reliably related to the level of the exchange relationships in which they are engaged. These outcomes will be reflected in higher levels of overall satisfaction, satisfaction with the work itself, and satisfaction with both the technical competence and interpersonal relationship of the supervision. All of these relationships were found to be highly significant in the initial study.

A very major problem in attempting to extend a model based on any single study, particularly a field study, involves the unknown degree to which local conditions were, at least partially responsible for the results obtained. Undoubtedly, the failure to document these local conditions has contributed no small amount to the lack of consistency found in previous leadership studies (Korman, 1974). When an attempt is made to capitalize upon some of these conditions, the probability of direct replication must be diminished. Fortunately, Dansereau and his associates provided enough information about their sample (including the nature of the organizational context, the network of relationships, and the stability of these relationships overtime) that a large number of modifications could be incorporated in the present study, in response to the different field conditions.

This present study also derived hypotheses from the heuristic model without the benefit of antecedent evidence. The first corollary hypothesis deals with the nature of the trust relationship between leaders and members. While Dansereau and his colleagues alluded to this construct frequently in order to help explain their results, it was not adequately measured. Jennings (1967) describes the trust relationship between supervisors as one which consists of four elements. Although he was describing relationships at the executive level, the

elements of accessibility, availability, predictability, and loyalty should also be helpful in the characterization of exchange relationships in managerial units. Formally, within managerial units there should be a positive and significant relationship between the level of exchange reported by both leaders ans members and the level of each of the four elements of trust (Hypothesis 7).

Another corollary hypothesis stemmed directly from the work of French and Raven (1959) concerning bases of power. They stated that supervisors within organizations have several methods available to them through which they could influence the behavior of their subordinates. These bases include referent power, expert power, reward power, and coercive power. French and Raven also include legitimate authority. It seems, however, that this authority base actually represents a sine qua non for the other bases of influence. Since leadership exchange probably is built upon a relationship of trust and respect it should involve referent and expert power with little coercive power. On the other end of the continuum, supervision exchanges, should place more reliance upon coercion and less upon referent or expert power. No clear prediction can be made about reward power. For in both cases rewards may be manipulable by the supervisor. The major difference in this situation may be in the type of reward power rather than the amount. Thus, (Hypothesis 8) leadership exchange will be marked by high usage of referent and expert power and with a distinct underutilization of coercive power. Next we turn to a consideration of a sequence of two vertical dyads--the linking-pin.

Linking-Pin

Likert (1961) proposed that "linking-pin" positions, those which span two or more distinct groups, units or teams, were the key roles within an organization and the behavior of those people who occupied these roles determined both the relative effectiveness of the organization and the quality of working life of lower participants. According to this model, a participant in a linking-pin position should be an integrated member in two or more groups and an involved advocate for each group. A person in such a position should serve to facilitate flows of communications, influence, and resources between membership groups in order to enhance mutual understanding and cooperation and reduce mutual suspicion and competition.

Clearly the relevant skills of an incumbent of a linking-pin position include interpersonal and intergroup competences. A person in such a position must be able to behave effectively as a member in groups in which he is a subordinate and as a leader in groups in which he is the superior. This implies that such a person must be able to form effective working relationships with those possessing greater power and higher status and those possessing less power and low status, as well as with peers. Some of the many difficulties in establishing and maintaining such exchange relationships were noted by Jacobs (1971).

Organizations, according to this model, might increase the effectiveness of linking-pins by providing greater resources for participants in these key positions. Armed with greater resources, linking-pins should be in better positions to deal with the pressures toward intergroup distrust and competition and foster commitment of members to both the unit and the larger organization. In this manner, the linking-pin might become the mechanism by which overlapping teams are locked together in ways that enhance intergroup cooperation and contribute to organizational effectiveness.

The outcomes expected from reinforcing these linking-pin positions with more effective participants and greater resources were: (1) more open and honest information transmitted in both directions over the link, (2) a greater total amount of influence exercised in both directions, (3) greater job satisfaction and commitment to the organization, and (4) more cooperation at the expense of "win-lose" competition.

Although the potential importance of these strategically placed positions (linking-pins) cannot be denied by any knowledgeable student of organizations, the empirical base for these notions appears sparse. Indeed, the few investigations relevant to this set of propositions have focused upon the relative upward influence of a leader upon his immediate superiors. The hypothesis under investigation was that leaders with greater upward influence would have more impact upon their respective subordinate members than those leaders with less upward influence would have upon their members.

An early study and one which apparently stimulated Likert to formulate the above model was that by Pelz (1952). In the process of testing the notion that human relations oriented administrative leaders were more effective with their members than mission oriented leaders, Pelz found that overall the behavior of leaders was not related to the reactions of members. Upon subsequent analysis it was discovered that the upward influence of the leader was a moderating factor. Specifically, he found that the supportive behavior of high influence leaders was related to significantly greater subordinate satisfaction than the supportive behavior of leaders with less hierarchical influence. However, the effect of this one dimension of the quality of the linking-pin only occurred within certain types of organizations and certain situations.

Later studies by Wager (1965) and House, Filley, and Gujarati (1971) produced results which suggested the presence of some additional, albeit weak, effects. Wager found that while both the supportive behavior of leaders and their perceived influence upward were positively related to leader obligations toward their members, the effect of upward influence was quite limited and was moderated by a fair number of demographic situational variables. House and his associates faired little better in their attempts to discover the moderator effects of

upward influence. Employing two separate samples, they found no moderating effect at all in one sample and only two of eight in the second. They concluded that upward influence may be important when members were of marginal status and had little autonomy.

Role-Making

The role-making model (Graen, 1975; Graen and Cashman, 1975) provides an alternative path to discovering the effects of the characteristics of linking-pins upon the behavior and experiences of members. This approach focuses upon the dyad (rather than the work group or the individual) as its basic unit of analysis. Of course, both the work group as combinations of dyads and the individual as one member of the dyad can be analyzed. Moreover, this approach with its focus upon exchange relationships appears ideally suited to investigate the dimensions of linking-pins. From this perspective a vertical linking-pin is composed of two vertical dyads linked in a hierarchical chain (see Fig. 1). Therefore, to understand the linking-pin, one must understand the two dyads and the relationships between them.

Extending the logic of differentiation to the unit in which a leader is a subordinate, leads to the prediction that a linking-pin might be composed of two differentiated dyads or a vertical chain of leader-member exchanges. Assuming that the dyadic relationships between leaders and their immediate superiors (bosses) can be profitably differentiated into two classes of exchanges analogous to those found in the above study a four-celled classification of linking-pins is produced: The higher dyad (between boss and leader) can be either (a) leadership exchange or (b) supervision exchange; and the lower dyad (between leader and member) can be either (a) leadership exchange or (b) supervision exchange. Therefore, the four combinations of higher--lower dyads and (1) leadership--leadership, (2) leadership--supervision, (3) supervision--leadership, and (4) supervision--supervision.

Cashman, Dansereau, Graen, and Haga (in press) investigated these four classes of leader-member exchange and found that both the differentiation of the lower dyad and that of the higher dyad accounted for significant amount of nonoverlapping variance in member and leader behavior. However, the combination (interaction) of higher and lower dyads showed only a few significant results.

Focusing upon the effects of the higher dyad upon member experiences, Cashman and his colleagues found that members who reported to leaders who were classified as developing leadership exchanges with their bosses experienced less severe job problems involving impediments to change and structural constraints on behavior (as reported independently by both members and leaders), reported receiving more leadership attention and greater sensitivity from their leader, and showed higher satisfaction with the technical competence of their leader, and with the psychological value of performance rewards than those members who reported to leaders who were classified as developing

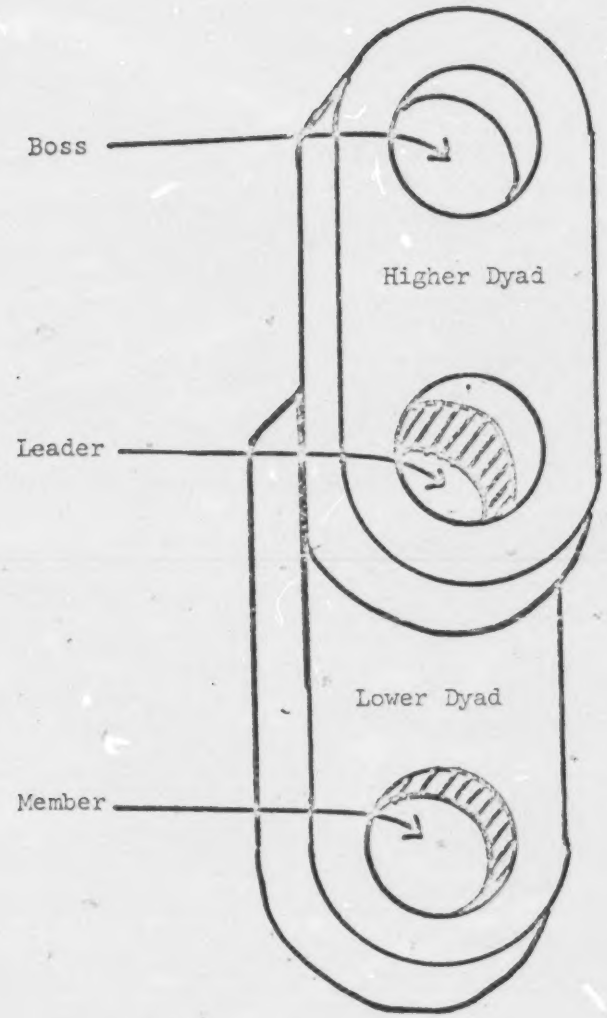

Figure 1. A linking-pin as a hierarchical chain composed of two vertical dyads.

supervision exchanges with their bosses. In addition to the effects of the higher dyad upon member experiences, the higher dyad also showed significant relationships with the experiences of the leader regarding their own job situation. Leaders classified as developing leadership exchanges with their bosses reported receiving more inside information, greater influence in decisions, higher degree of job latitude, and greater support from their bosses than those classified as developing supervision exchanges with their bosses. Moreover, the work attitudes of leaders showed consistent results. Leaders classified as under leadership exchange demonstrated significantly more positive attitudes toward both the technical competence of their bosses and their interpersonal relationships with their bosses, as well as, with the value of job performance rewards than those under supervision exchanges.

Cashman and his colleagues conclude that if a leader has greater influence with his boss by virtue of a leadership exchange as opposed to a supervisory exchange in the higher dyad, that leader should be able to more effectively facilitate the operations of their subordinate members. Such a leader is in a position to cut red tape, expedite communications and cooperation for his members, and in addition to making existing systems work more efficiently for his members, support changes in established systems initiated by his members. As they state:

> ...This ability to make things happen outside of his own unit which facilitate the accomplishment of his subordinates may be the most distinguishable functional characteristic of (linking pins).

These results suggest that the nature or quality of what we have called the higher dyad has implications for experiences of members and the quality of their working life. Although members are not a party of this dyadic linkage and seldom can influence its development in any meaningful manner, they may suffer the consequences nonetheless. The further investigation of this higher dyad is the purpose of the present study. We propose to classify nigher dyads employing the procedures of Cashman and his colleagues and to assess the differences in behavior, attitudes, and treatment of both subordinate members and leaders themselves.

METHOD

Graen (1975) developed a methodology which he felt would provide a researcher with the capability of making stronger inferences from his data than are made possible through usage of the traditional hypothesis testing techniques. This methodology would also provide other parties with enough information that replication efforts could be more fruitful. In an abbreviated fashion the following are the steps which Graen (1975) ennumerated: (1) The study should seek to understand the phenomenon of interest, its context and boundary conditions. (2) The research

questions in the study should contain a minimum of unproven assumptions. (3) The setting and sample are selected for the study based upon the expected operation of the phenomenon of interest. (4) The study begins with a broad scope in order that the complete setting and time cycle of the phenomenon may be observed. This procedure allows for the testing and refinement of instruments and thereby increasing the quality of the data collected. (5) The major goal in the study is increasing intrinsic validity by the reduction of sources of bias and error. (6) The analysis must not only show significant results but also consistent patterns of logically integrated and substantially significant results. This "open system" design for research was incorporated into the initial study of vertical dyad linkages. The present effort also incorporated this design strategy in its selection of setting, sample, and timing and for purposes of refinement and extention of the vertical dyad linkage model.

Setting

According to the "open system" strategy, a setting should be selected based upon the expected operation of the phenomenon of interest. In this instance, the phenomenon may be described generally as differentiation within managerial units. Therefore, an appropriate setting might be any formal organization containing an adequate number of managerial level leader-member dyads engaged in team building. Since the present study will attempt to refine a previous one certain other constraints came into play. First, the setting of the initial study was described by Dansereau et al. (1975) as an administrative pyramid within a large public university. Second, the personnel activity at the university closely approximated the academic year. All major activity began in August and had generally ended by June, with other activity fluctuations approximating the semesterly cycles.

The setting for the present study matched that of the earlier study in several aspects. First, the sample was drawn from the same large public university. Second, the organizations were tied to the academic calendar in a manner similar to that in the previous study. Third, the entire managerial hierarchy of each of the organizations was included. The major difference between the present setting and that of the initial study is that the present organizations were not selected on the basis of an unusually high level of reshuffling of personnel either by new hiring or internal movement. Rather, the setting included much more typical organizational circumstances. Thus, the outcomes associated with the different levels of leader-member exchange should be generalizable to the much more common population of organizational settings.

Sample

The sample for this effort was composed of leader-member dyads from three semi-autonomous departments within the university. From each department, a Library, an Office of Admissions and Records, and an Administrative Data Processing unit, the entire administrative hierarchy was included. Along with these administrative personnel, data was also gathered from a service of the professional personnel

within each department. The mixture of the sample along this continuum approximated that reported by Dansereau et al. (1975). The only major difference between the sample for the initial study and the present one was in the tenure of the leader-member relationship. Within the present study 25% or fewer of these relationships were new. In the initial study this figure reached about 90%. The total sample for the present study consisted of 109 vertical dyads. Since the full range of dyadic tenure was present, analyses of differences in exchange relationships due to the differences in dyadic tenure were possible.

Procedure

The elaborate procedures which were necessary for a study of this magnitude included several processes. The first process involved locating the target sample, working up the design, and devising the initial instrumentation. The process of finding the sample began with the determination of certain conditions which would have to be met. First, the sample had to be relatively large, but centrally located in order that the interviewers could do their jobs without excessive travel. Second, the structure of the sample organizations needed to be relatively tall in order to provide ample managerial positions at several levels. Most importantly, the organizational heads would have to be willing to open their doors. Several potential research sites were located with the help of the university's personnel service department. After some initial screening, it was determined that three departments within the university would meet the above conditions. The next step of the process involved meeting each of the three departmental directors and discussing with them the rationale of the study and its feasibility within their departments. Basic ground rules were discussed and group meetings were set up with the higher echelon managers of each department. These meetings aided the study in several ways. First, these managers were presented with a fairly broad sketch regarding the purpose of the study and its timing. Based on this information they could make input into the final decision of whether or not to get involved. Second, these meetings provided a mechanism by which the managers and interviewers could meet each other. Third, and most importantly, the meetings produced some commitment from the managers to follow through with the study after their initial decision.

Although the design of the present study was partially determined by the earlier study, whose model formed its base, considerable time was spent after the initial departmental meetings to determine any necessary design alterations, based upon the perceived idiocyncrasies in the present sample. The major design decision was that instead of gathering four data points, we would use the first collection period to test and modify the instruments used from the initial study. Thus at the first data point we would utilize nearly all of the original instruments, but probe the respondents to find out if they were meaningful in describing their present job situations. If they were not, we were prepared to replace items or discard them.

The timing of the interviews proceeded as follows: The Pilot phase lasted from October to December; the first data collection period was

from January to March; the second collection period extended from April until June, and the final wave began in July. This final session became somewhat elongated for several reasons. First, during this period many participants spent fewer hours in their offices, and were more difficult to contact. Vacation periods also had to be worked around. The final wave was also our last opportunity to collect information on several instruments which had only been used once before. Adding many of these original instruments to still more newly developed ones, increased the length of this final interview session. Further, since the respondents knew that this was their final opportunity to contribute, many felt compelled to state their cases as completely as possible. The final interviews were not completed until early September.

In total, 109 participants were interviewed on four separate occasions: during the pilot phase and during each of the three collection periods of the study. The supervisors of these 109 participants, 33 in all, were also interviewed four times about their members. A rough approximation of the time spent completing these interviews would total approximately 1000 hours. Obviously this was an expensive method of performing research.

Instruments

Information was collected on five sets of variables: structural and demographic measures, supervisory treatment measures, behavioral measures, outcome measures, and the independent variables.

The purpose of collecting structural and demographic information was twofold. First, this information would be used to determine the possible effects of differential organizational status upon the nature of the working relationships between leaders and members. Secondly, these measures would be used to identify the possible selection criterion for the various exchange relationships. These variables include: information about the participants' age, race, sex, number of dependents, marital status, education, number of professional organizations to which they belong, and the number of professional publications which they subscribed to. The structural variables included: job title, tenure in the organization and position, vertical level, and span of control.

Perceptual information collected across several dimensions include: interpersonal sensitivity, job needs, supervisory treatment, interpersonal trust, interpersonal influence, and willingness to contribute. Each of these scales were administered verbally to both leaders and members.

Interpersonal Sensitivity. This set of items assessed the extent to which the supervisor was helpful with respect to the work situation of the members as well as personally. These items also assessed feelings regarding the extent to which a member could define his job for himself. These scales were administered verbally to both members and their supervisors.

Table 1

Matrix of Data Collected

Instrument	Time of Assessment T_0	T_1	T_2	T_3
Structural and Demographic	X	X		
Perceptual Measures				
Member Reported				
Work Sensitivity	X	X	X	X
Personal Sensitivity	X	X	X	X
Self-Determination	X	X	X	X
Job Needs		X		X
Supervisory Treatment		X		X
Interpersonal Trust			X	
Bases of Influence			X	
Willingness to Contribute		X	X	X
Superior Reported				
Work Sensitivity	X	X	X	X
Personal Sensitivity	X	X	X	X
Self-Determination	X	X	X	X
Job Needs		X		X
Supervisory Treatment		X		X
Interpersonal Trust				X
Bases of Influence				X
Willingness to Contribute		X	X	X
Behavioral Measures				
Member Reported				
Activity Assessment (FN)	X	X		X
Activity Preferences (FP)	X	X		X
Superior Reported				
Activity Assessment (SO)	X	X		X
Activity Preferences (SP)	X	X		X
Outcome Measures				
Member's Report of Job Problems	X	X	X	X
Superior's Report of Job Problems	X	X	X	X
Role Orientation Index	X	X		X
Satisfaction & Expectancy Measures	X		X	
Job Performance			X	
Independent Variables				
(Vertical Exchange Scale)		X	X	X

Job Needs. This instrument assessed both leader and member viewpoints regarding various aspects of their relationship. Members reported how much they were receiving of the items, and supervisors were asked to report how much they provided each member.

Supervisory Treatment. This scale consisted of several items designed to assess the frequency of support which a leader provided to each member. Both leaders and members were asked to report their perceptions of the frequency of this behavior.

Interpersonal Trust. This instrument consisted of five items which were designed to assess several dimensions of interpersonal trust. Each leader and member reported their perceptions of the relationship along these dimensions. These questions were developed by the authors based upon the descriptive material presented by Jennings (1967).

Base of Influence. This instrument was developed by the authors based upon the work of French and Raven (1959). This instrument was designed to assess the degree to which each of five bases of influence were present in the vertical dyadic relationship.

Willingness to Contribute. This scale was developed to assess the degree to which a member was willing to give more of his time and effort to the unit when needed. Both leaders and members responded to this scale.

Behavioral measures were designed to assess each member's allocation of time across a set of activities. These instruments were developed from the original list of activities of Dansereau et al. (1975). The original set of activities were used during the pilot phase. All participants were asked to suggest both additions and deletions to this original list. After the pilot phase the interviewers content analyzed these revisions. The resultant list was used throughout the study. Each activity was assessed from the viewpoint of both supervisors and members. For each activity, each member was asked to report his current time involvement in terms of four possible responses ranging from "none" to "consideralbe." Each member was also asked to report his preferred level of activity, given his present level of activity as the baseline. These responses could range from "prefer to do much less" to "prefer to do much more." The scale, thus represent, what each focal was now doing (FN), and what he would prefer to do (FP).

Supervisors were also asked to respond to this activity list along two dimensions. First, they reported the amount of time which should be spent by each incumbent manager on each activity. Second, each supervisor reported the degree to which the focal's present level of activities deviated from what the supervisor believed it should be. Thus, this instrument gathered assessments from each supervisor regarding what the activity level of each unit member should be (SO). These responses could range from "none" to "considerable." Each supervisor also reported the degree to which the perceived activity

level of each member deviated from the level that he, the supervisor, preferred (SP). These responses could range from "should do much more" to "should do much less."

This instrument was administered verbally and all four assessments, FN, FP, SO, and SP, were gathered on each of 26 activities.

The outcome variables were concerned principally with the assessment of the work situation.

Job Problems. This instrument was orginally developed by Dansereau et al. (1975). Like the behavior measures, these items were also tested in the pilot study and several modifications were introduced. The instrument assessed the degree to which 21 separate problems represented obstacles to the focal persons. Each person's report on each item could range from "not a problem" to "a major obstacle." The supervisor of each focal also reported the degree to which each item represented a problem to each of his unit members.

Role Orientation Index. This instrument was used to assess each unit member's attitude toward his work and his supervisor. The format for this instrument is an adjective-checklist similar to the Job Satisfaction Index (Smith, 1967). Four scales were factor analytically derived from these items. These scales are similar to those found by Graen, Dansereau, and Minami (1972) and Graen, Orris and Johnson (1973).

Satisfaction and Expectancy Measures. Overall job satisfaction was measured using the Hoppock Job Satisfaction Blank (Hoppock, 1935). This instrument consists of four items each having seven response alternatives. In addition, three, expectancy measures were collected from all members. These items included: (1) the expectation of improving the performance rating, (2) each member's subjective mobility, and (3) the expected job security, of each member.

Employee Rating Scales. This instrument was used to assess the supervisor's evaluation of the performance of each unit member. The aspects of performance evaluated included: dependability, alertness, planning, know-how and judgment overall present performance, and expected future performance.

Vertical Exchange. The development of the independent variable involved work on several dimensions. First, the scale of dyadic exchange needed to be augmented. The scale of the initial study (Dansereau et al., 1975) concentrated on the perceived approachability and flexibility of the supervisor. Based upon the subordinate perceptions of these two items, they categorized dyadic relationships. The augmentation of the scale was successfully accomplished through the addition of two more items. The rationale for the retention of the original items and adding to them was quite simple. It was assumed that the initial aspects which acted as the basis for an exchange would not change qualitatively over time. Rather this basis would become enriched and include other

aspects. For instance if the supervisor was perceived as likeable and approachable initially, by certain members this should translate into a higher level of contact between the leader and these members. If a member finds a supervisor to be approachable he should be more likely to go to him with ideas and suggestions regarding unit activity. Also, the member should view the supervisor as being more willing to help him when he has problems in his job. Thus, four questions were used in order to empirically define the nature of the exchange linkage. These were as follows:

> How flexible do you believe your supervisor is about evolving change in your job activity structure?
>
> Regardless of how much formal organizational authority your supervisor has built into his position, what are the chances that he would be personally inclined to use his power to help you solve problems in your work?
>
> To what extent can you count on your supervisor to "bail you out," at his expense, when you really need him?
>
> How often do you take your suggestions regarding your work to your supervisor?

The response alternatives for the first variable were: "supervisor is enthused about change," "he is lukewarm about change," "he sees little need to change," "he sees no need to change." The second and third variables had the following response alternatives: "he certainly would," "he probably would," "he might or might not," and "not at all." The final variable had the following response alternatives: "almost always," "usually," "seldom," "never."

A second dimension of the problem with the independent variable employed in the initial study was that its assessment included only a single viewpoint. Possibly, the phenomenon of negotiating latitude existed solely within the head of the respondents. If this were the case this variable should bear no relationship to the response from another rater. In order to assess the convergent validity of the present measure supervisors, as well as subordinates, were asked to respond to each of the four variables. Supervisors answered these questions about each unit member in the study.

A final dimension of the problem concerns the measurement validity of the scale. Even if both supervisors and subordinates tend to agree in their assessments of the independent variable, this agreement may be due to method variance rather than valid variance. In order to assess the measurement validity of the present scale another method was introduced. With this method, each participant was asked to draw a map of the vertical working relationships within his unit. Using this VDL map method, each participant was asked to designate for each vertical relationship within the unit one of three categories; (1) ineffective, (2) intermediate in effectiveness, or (3) effective.

Beside providing evidence regarding the measurement validity of the psychometric scale of vertical exchange, this map method also provided information regarding the distribution of vertical exchanges. Based upon the information collected on the VDL maps, the distribution of this variable approximated a 25% in-group, 50% middle-group, and 25% out-group configuration rather than the 50-50 split used in the initial study.

The level of success at augmenting the scale can be determined through analysis from several perspectives. First, assuming that these variables are all conceptually related to the construct of dyadic exchange, they should also be empirically related within this present sample of 109 managers. (These managers belong to three separate departments within the university. A departmental analysis showed no significant pattern of differences among them. Therefore, the managers from all departments were combined for purposes of further analyses.) The homogeneity coefficients, showed in Table 2, indicate that, over the course of the collection period, the items formed an even tighter relationship with each other. Since these items showed statistically significant inter-relationships along with conceptual congruity, they were summed to form the scale of vertical exchange.

Once formed, the nature of the exchange linkage between a leader-member pair can be expected to remain relatively stable over a fairly lengthy period. This may occur for several reasons. But the result is that the exchange relationship comes to be enveloped by a broad set of norms which provide the guidelines for acceptable behavior (Homans, 1961). The norms tend to ensure stability in the relationship. As shown in Table 2, within the present sample the stability of the vertical exchange scale was found to be quite high.

Another important element in establishing the validity of the Vertical Exchange scale, is the demonstration of convergent validity. One method to assess this validity involves the gathering of the same information from a different perspective. Since the present construct is concerned with the nature of the relationship between leaders and members, the leader should be in the best position to provide the second perspective. The upper triangle in Table 2 indicates that the relationship between the two perspectives, using the same scale, is quite high (.50) and therefore not likely to be the result of a totally subjective rating.

Table 2 also shows the results of the test for the measurement validity of the scale. The results indicate a relatively high level of agreement in all respects. First, all raters tended to agree in their ratings of working relationships. These results are shown in the lower-right triangle. Most importantly, the relationships between the scale ratings and the map ratings were quite high across all raters. These correlations appear in the lower-left triangle. Finally, the correlations within the same method are very comparable to those between different methods. These similarities indicate that the

Table 2

Multimethod-Multisource Correlation Matrix

Method Source	Scale		Map		
	Member	Superior	Member	Superior	Peers
1. Scale:					
Member	1.00				
Superior	.50	1.00			
2. Map					
Member	.43	.36	1.00		
Superior	.40	.53	.41	1.00	
Peers	.34	.46	.51	.57	1.00

Note: All correlation coefficients are statistically reliable: ($p<.01$), N=109. Stability coefficients (unadjusted were .82, .81, and .73 for member scale, and .66, .83, and .71 for superior scale between four and seven, seven and ten, and four and ten months respectively. Spearman-Brown homogeneity coefficients were .76 and .58 at four months, .80 and .61 at seven months, and .84 and .68 at ten months, for member scale and superior scale, respectively.

measurement has not capitalized on method variance. If it were the case, the correlations within the same method could be expected to be much stronger than those across the methods. This did not occur. Clearly, these results must increase our confidence in the measurement validity of the present vertical exchange scale.

Another advantage of utilizing the map method was that it provided information regarding the nature of the distribution of exchange relationships within units. Since each participant generated their own distributions of the vertical relationships by designating a given number in each of the three categories, three independent estimates of this distribution were available. General agreement was found among the distribution generated through: (a) self-ratings, (b) superior ratings, and (c) peer ratings. In all cases approximately 25% of the vertical relationships were classified as effective, 50% as intermediate, and 25% as ineffective. Given this information, the next step involved the categorizing of vertical exchange relationships based upon the scale responses.

From the earlier findings of Dansereau et al. (1975), it was expected that a relationship might exist between the vertical exchange scale and the length of the relationship between a leader-member dyad. In order to check this possibility, the sample was divided into three categories of dyadic tenure. This distribution of scale scores within each of these tenure classifications showed that a relationship did exist between these two variables. Particularly within the group with the shorter tenure, the exchange scale scores were unevenly distributed and weighted toward the high end of the scale. Within the shortest tenure group (0.0 to 0.6 years) only 20% of the sample fell within the lower half of the exchange scale while 80% were in the top half of the distribution. This was also the case for the middle tenure group (0.7 to 1.6 years). In order to ensure that this interaction between leader-member tenure and the exchange variable distribution would not effect the analysis of exchange relationships with other dependent variables it was decided to partial out his relationship (Hays, 1963).

In summary, the classification of the vertical exchange relationships was developed through a three step procedure. First, the vertical exchange items were summed for all participants. Second, the appropriate distribution for the classification was determined from the map information. Finally, the scale scores were grouped into three classes within tenure groups. The final distribution was accomplished by placing approximately the lowest 25% of each tenure group into the low classification and approximately the same number into the high classification. The remaining persons within each tenure classification were placed in the intermediate group. The result of this classification system showed 26 members reporting low levels of vertical exchange, 60 members reporting intermediate levels, and 23 members reporting high levels of vertical exchange.

The interpretation of the two extremes of the present classification

(the low and high exchange groups) follows that of Jacobs (1971) and Dansereau et al., (1975) in the usage of the labels of "leadership" and "supervision." Leadership (high exchange) according to these authors involves the influence of members by superiors without resort to the authority derived from the employment contract. Supervision (low exchange) involves the influence of members through the exercise of contractual obligations. The intermediate group (medium exchange) shares some of both of these methods of influence. For this group the influence of members involves partial reliance upon interpersonal exchange and partial reliance upon contractual obligations.

It was assumed that the nature of the vertical dyadic linkages should be quite stable over a fairly lengthy period of time. This expectation was found to hold true based upon the analysis of the raw scale scores. Based upon the trichotimization of exchange relationships, not only did the analysis reveal that the relationships tended to be quite stable over the seven month period but also that each group reported very different levels of exchange. This analysis was performed in the following manner. The trichotomy (low, medium, and high groups) was established at T_1. This classification was used as the independent variable. The scale score of vertical exchange at each of the last two time periods was used as the dependent variable. The differences between these mean scores were tested both by an analysis of variance design at each time period and a repeated measures design (Winer, 1962). The first analysis showed that each exchange group was significantly different ($p<.001$) from each other at both T_2 and T_3. The repeated measures analysis of variance showed that the difference among all three groups was significant ($p<.001$) overall the time periods combined. The effect of time (the change in the variable itself over time) was not significant ($p<.39$). The analysis also did not show any significant interaction ($p<.46$) of the exchange group effect with the time effect (a change in the trichotomy of vertical exchange over time). Thus the exchange relationships, once formed, tended to be quite stable over a period of seven months (the length of time from T_1 to T_3).

Job Type

The team building model predicts that different levels of vertical exchange are characterized by both differential inputs and outcomes to both parties in the exchange. As an alternative explanation, one might posit that these differences in exchange are found largely due to variations in organizationally defined functional demands upon unit members.

In order to assess the contribution of these functional differences, the sample was classified according to job type. Using job titles for this classification proved to be impossible. Rather, a functional scheme, like that suggested by Katz and Kahn (1966) was implemented. Using this system, a four category description of the job types resulted. This classification of functional job types divided the sample as follows: (1) 19 top-level administrators, (2) 24 coordinators, (3) 33 supervisors of core organizational processes, and (4) 33 non-supervisors and others.

Analysis of Lower Dyad

The design of the investigation required the testing of the effects of three levels of vertical exchange (low, medium, high) as assessed at T_1 on a number of dependent variables over time (T_1, T_2, T_3). A 3 X 4 analysis of variance design with and without repeated measures (Winer, 1962) was employed. Job type with four levels was the second factor of the design (Hays, 1963). Multivariate analysis of variance (Bork, 1963) was employed to control for redundancy within dependent variable sets. Stepdown procedures were used to estimate the number of independent sources of variation within each set of dependent variables.

Results are presented in four sections: (a) member's report of exchange outcroppings, (b) superior's report of these exchanges, (c) member's report of job outcomes, and (d) supervisor's report of outcomes.

RESULTS ON LOWER DYAD

View of the Linkage of Members

According to Hypothesis 5, members engaged in a high level of exchange (in-group members) should also report spending more time in administrative activities. This greater involvement was hypothesized to be a major investment by a member in the exchange process. Members classified as medium-group and out-group exchanges should report monotonically decreasing amounts of time spent across these activities. The perceptions of focal managers regarding how much time they spent engaged in these various activities are presented in Table 3. This table indicates that at each assessment period and across both periods the in-group managers reported greater time allocations than any other group on all activities with the exception of managing. The Tukey test for differences between groups (Winer, 1971) indicated that in-group members reported reliably higher ($p<.05$) involvement in liaison, boundary spanning, administration, and planning than did out-group members at each time period. But the in-group and medium-group were reliably different only with regard to boundary spanning and planning at these periods ($p<.05$). Finally, the medium-group reported reliably more involvement only in administration ($p<.05$) than the out-group members at each time period. These post-hoc tests suggest the nature of the linkage between a leader and a member as it moves from one of supervision (out-group) to leadership (in-group).

A multivariate analysis of these activities revealed a slightly different pattern. This technique works in the following manner. Given a set of dependent variables, for example five activities at each of two time periods, an analysis of variance design might indicate that each dependent variable shows significant differences between the groups in the design, taking one dependent variable at a time. But if each of these variables are perfectly correlated, the same variance would be explained by each dependent variable. If the intercorrelation of one of them on all the rest were partialled out, in this case, none of the others would be able to reliably differentiate among the groups in the design. In short, this technique partials out the effect of

Table 3

The Involvement in Managerial Behavior
By the Three Exchange Groups (FN) at Each Time Period

Activity	Mean Involvement						Probability Exchange		
	T_1			T_3					
	Out	Middle	In	Out	Middle	In	T_1	T_3	Time
Managing	9.92	11.07	11.43	10.42	11.12	11.87	.08	.11	.02
Boundary Spanning	8.23	8.90	10.48	8.31	9.35	10.96	.02	.001	.30
Administration	7.54	8.89	9.91	7.19	8.85	9.96	.001	.001	.94
Planning	12.38	12.55	14.83	11.69	13.07	14.52	.005	.005	.63
Liaison	7.62	8.13	8.91	7.35	8.57	9.30	.04	.004	.67

each dependent variable on all others which follow it in the design. The usage of this technique with the managerial activities reported by members, showed the following results. First, overall the activities there was a significant difference ($p<.01$) between the groups. But when administrative activities were placed first in the design, it alone showed a reliable difference among the groups ($p<.01$).

A very similar set of results was found in the analysis of supervisory expectations (SO) regarding the allocation of time in the activities. Supervisors expected their in-group members to spend more time ($p<.05$) at boundary spanning, administration, and planning than the middle-group or out-group. No reliable differences were found with the managing scale, and the liaison demonstrated a reliable difference ($p<.01$) only at the last time period. The multivariate analysis of this set of variables also demonstrated a reliable overall effect ($p<.05$), but only administrative activity showed this reliable difference ($p<.05$). Each of the other activities following it in the multivariate design was not able to discriminate among the exchange groups.

It should also be noted that the job type analysis of these activities was successful in discriminating among functions on all activities, except liaison, based on reports by members (FN). Supervisor reports (SO) discriminated among job types in a similar manner. In this case however, neither liaison nor boundary spanning activities were significantly related to the job type classification. These results generally support the validity of the activity scales in their sensitivity to differences in formal job structures. The lack of significant interaction between the dimensions of job type and exchange also indicates that the activity instruments did not capitalize upon this variance in showing differences among the exchange groups.

Two other sets of analyses regarding activities indicated that there were generally no differences regarding the preferred time allocation (FP) for each activity between the groups. Generally, the manager reported that they preferred to spend approximately the same amount of time as they were presently doing, and there were only insignificant differences among the group in this judgment. Further, the supervisors of these members did not report any reliable differences in their preference for greater or lesser involvement (SP) in these activities. It was expected that supervisors would report the activity level of in-group members to be much more in line with their preferences than those of the other groups. However, this did not prove to be the case.

These results indicate that one characteristic which defines the differences in vertical dyadic linkages is the differential allocation of time in managerial activities. These results can be explained by the team-building model, proposed above, in the following way. A supervisor is vested with the responsibility of reaching and maintaining certain output goals for his unit. In order to accomplish this mission, he selected certain members to offer the opportunity to contribute more to the unit. This selection is probably based upon some perception

by the supervisor that a member is both willing and able to contribute in this fashion. But this contribution does not appear to include all aspects of behavior, rather the key appears to be in the member's assumption of some of the supervisor's administrative duties. Such help probably allows the supervisor to spend more time with other duties and also gives the member some experience with this important aspect of supervisory responsibility. However, one might expect that such a relationship could not be maintained unless these members were receiving greater benefits to offset these greater costs of inputs.

Perceptual Measures.

The perceptual information collected from the participants include a wide variety of measures. Each was designed to provide further information regarding the nature of the differential aspects of vertical dyadic exchanges within a team building framwork.

Sensitivity Measures.

These measures were derived from a set of eight items, according to their conceptual and empirical clarity. Based on their inter-relationships at the last collection period, three measures were derived, namely work sensitivity (WS), self-determination (SD), and personal sensitivity (PS). Each of the items was summed in order to derive the three measures. Each of the measures proved to be quite stable over the period of the assessment, however, their inter-relationships were also quite high. For this reason, these measures were subjected to multivariate analysis in order to determine the unique variance contributed by each.

Before considering the relationship of these measures to the exchange variable, it must be noted that none of the measures was reliably related to the job type classification. Only the SD measure approached the necessary level of statistical significance, and tended to discriminate between the top-level administrators (group 1) and the category of non-supervisors and others (group 4). The former group reported somewhat higher levels of self-determination in developing their role than the latter group.

Based upon the exchange model of leader behavior, the extra involvement in unit activities by some team members should be (perceived to be) matched by increased sensitivity to their needs by the supervisor. Table 4 shows the results of this analysis at the three periods at which these variables were assessed. On each of these measures, the in-group members reported the perception of more work and personal sensitivity from their supervisors, along with greater amounts of self-determination in developing their jobs ($p<.001$). These differences also proved to be reliable between each of the possible group comparisons ($p<.05$). Together these measures appear to highlight two simultaneous processes. Along with a certain level of activity, depending on the exchange level, and associated level of sensitivity is perceived by members. This first process appears to involve an increasing understanding of expectations and capabilities

Table 4

The Sensitivity of Supervisors by Three Exchange Groups Over the Three Time Periods

Variable	Mean Sensitivity T_1 Out	T_1 Mid.	T_1 In	T_2 Out	T_2 Mid.	T_2 In	T_3 Out	T_3 Mid.	T_3 In	Probability Exchange T_1	T_2	T_3	Time
Work Sensitivity	4.46	5.68	6.70	4.35	5.57	6.87	4.39	5.48	6.48	.001	.001	.001	.38
Self-Determination	8.73	10.30	11.04	8.69	10.18	11.30	8.81	10.40	11.13	.001	.001	.001	.71
Personal Sensitivity	6.69	9.65	11.17	6.81	9.33	10.9[illegible]	6.92	9.50	10.57	.001	.001	.001	.53

25

Table 5

Leadership Attention and Information
Received by Three Exchange Groups
At Two Assessment Periods (T_1 and T_3)

Variable	Attention and Information Means						Probability Exchange		Time
	T_1			T_3					
	Out	Mid.	In	Out	Mid.	In	T_1	T_3	
Attention Received	10.42	15.63	17.70	9.54	14.85	15.53	.001	.001	.36
Job Information Received	5.35	6.63	7.87	5.77	5.98	7.48	.005	.03	.24

by supervisors as members vary from out-group to in-group status. The second process involves an increasing control of the task parameters as the level of exchange increases. The multivariate analysis of these measures, however, indicated that only one of these sensitivity measures contributed reliable unique variance. Whichever of the three measures entered the equation first maintained its significance level but the other two measures did not.

Job Needs Measures.

This set of perceptions includes eight items. For each of these variables each member was asked how much of it he was getting. The response alternatives varied from "almost none" to "a great deal." The principal components factor analysis demonstrated that these items represented two factors. The first factor grouped together items which indicated leadership attention. The first item also loaded on this factor empirically, but did not match the other items conceptually. This item was not included in the scale. The second factor grouped together items which indicated receiving work information from the supervisor. These items were summed to form the two scales.

While these scales proved unable to discriminate among job types at either of the periods of assessment (T_1 and T_3), they reliably differentiated exchange categories. As hypothesized the in-group members reported that they were receiving both more attention and information than medium-group or out-group members. These results proved to be reliable at each time period ($p<.01$) and, as shown in Table 5, the differences were significant across both assessment periods. These results indicate that in fulfilling their various roles on the team, supervisors are perceived to supply members with varying levels of attention and job information. Thus, supervisors are not only perceived as more sensitive to needs, but also more giving to informational resources to those who appear to need them, by virtue of their larger contributions and self-determination in their roles.

Supervisory Treatment.

This scale consists of three items and was used to assess each member's perception of the frequency with which their supervisor behaved in a supportive manner. These items were given unit weights and summed to form the scale of supervisory treatment. The team building model of leadership hypothesizes that the differentiation of unit members includes a higher level of support given to those who have developed in-group exchanges than to others in the unit. This hypothesis assumes that, unless a supervisor provides support frequently, a leadership (in-group) exchange would not be likely to be maintained. If support did not result, the linkage characterized by sensitivity and approachability would soon be seen as an empty exchange by in-group members.

An analysis of this scale with the job type classification indicated that there was a moderate relationship between them. Over the two time periods at which this variable was assessed, the group of non-supervisors and others (group 4), reported a lower frequency of support than

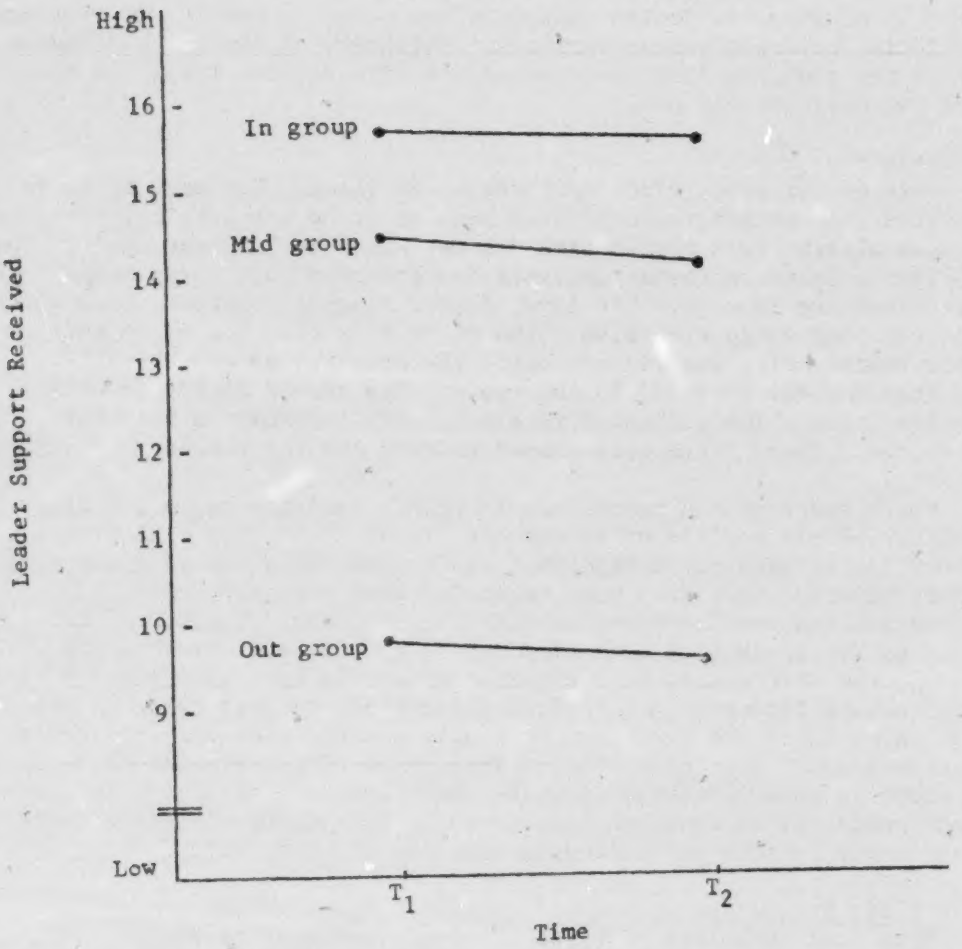

Figure 2. Leadership Support Received

Table 6

Member's Perception of Dyadic Trust
By the Three Exchange Groups (T_2)

Variable	Mean Trust			Probability Exchange
	Out	Middle	In	
Openness to ideas	3.96	4.03	4.30	.21
Willingness to share ideas	3.65	4.03	4.48	.005
Availability to give support	4.27	4.23	4.48	.18
Supervisor defends decisions	3.19	3.82	4.39	.001
Protects supervisor	3.62	4.00	4.30	.002

the top level administrators (group 1). This difference, however, was not statistically reliable ($p<.09$).

The analysis of exchange groups demonstrated the hypothesized effect. As shown in Figure 2 the in-group members perceived greater frequency of support than the other exchange group members. The differences between each of the groups were reliable as each assessment point. Clearly, the vertical dyadic linkages were marked by very different levels of perceived support behavior of the supervisor, and this relationship was not influenced by the job type classification of the member, (no job type by exchange interactions).

Interpersonal Trust.

Jennings (1967) asserted that leaders at executive levels frequently differentiated subordinates in such a way that some became "crucial" subordinates while others did not. He concluded that the basis for this differentiation was dyadic loyalty. The present team building model of leadership hypothesizes that this differentiation should be characteristic of the differences between in-group, medium-group, and out-group exchanges. To test this hypothesis, the characteristics of loyalty described by Jennings (1967) were developed into a set of five structured questions. As predicted, leader-member exchange showed reliable differences on these measures. As shown in Table 6, the trend in all cases was monotonically increasing from out-group to in-group. These results indicate that three elements of trust differentiate the groups. In-group members reported a greater willingness to share ideas. They reported that their supervisors were likely to defend their decisions, and that they would protect their supervisor from others. The Tukey post-hoc analysis indicated that these latter two items showed reliable discrimination between each of the possible group comparisons ($p<.05$). Further, even though these items were quite highly intercorrelated, two of the items contributed uniquely to the characterization of the exchange relationships. The member's willingness to share ideas and the supervisor's perceived propensity to defend the member's decisions contributed unique and reliable ($p<.02$) variance in describing the differences in trust between the exchange groups. Another characteristic of the in-group exchange relationship thus involves high levels of trust. Trust, in this case, perceived as an approachability and openness of supervisors along with their willingness to defend the decisions of the key team members (those in the in-groups).

Bases of Influence.

Another hypothesis derived directly from the team building model of leadership concerned the bases of influence. This variable was originally developed by French and Raven (1959). Leadership (in-group) exchanges, according to this hypothesis, will involve expert and referent power, but little coercive power. Out-group (supervision) exchanges will involve more coercive power and little expert and referent power. This hypothesis is based on the assumption that, if loyalty and sensitivity are characteristic of leadership exchange

Table 7

Member's Perception of the Bases of Influence
By the Three Exchange Groups (T_2)

Variable	Mean Influence			Probability Exchange
	Out	Middle	In	
Referent	2.00	2.87	3.83	.001
Expertise	2.81	3.72	4.04	.001
Reward	2.54	2.78	3.17	.11
Coercion	2.69	2.02	1.74	.003
Legitimate	4.23	4.27	4.13	.80

linkages, then the usage of coercion would probably undermine the relationships. The usage of referent and expert power would tend to enhance these relationships. Assuming that out-group exchanges are based on authority and status relationships, referent and expert power should play a lesser role in these exchanges and coercion would probably be more compatible with the exchange linkage.

These bases of influence as perceived by unit members generally bore no relationship with job type. However, referent power reliably ($p<.01$) discriminated the top-level administrators (group 1) from the other job types. These administrators reported that they were influenced by their supervisor through his usage of referent power. These mean scores were 3.84, 2.88, 2.73, 2.42, for job type groups 1 through 4 respectively. Across all of these bases, however, there was no reliable relationship with job type.

The results relevent to the hypothesis regarding exchange relationships are shown in Table 7. This table reveals that the reports of unit members demonstrated a reliable difference both on the referent ($p<.01$) and expert ($p<.01$) power used by their supervisors in hypothesized direction. The Tukey post-hoc analysis of these results showed that all groups were reliably different in terms of the perceived usage of referent power and that only the one comparison of in-group vs. medium-group did not demonstrate reliable differences with regard to expert power. Further the analysis showed that out-group members reported the perception of reliably ($p<.01$) more coercion used by their supervisors than either of the other two groups. No differences were found between any of the group in perceived reward or legitimate power.

These five bases of power showed a fairly low level of intercorrelation. However, the multivariate analysis of these items indicated that once the variance of referent power was removed from the equation, none of the other four influence bases bore a reliable relationship. Possibly the relationship between referent and expert power is similar to that of legitimate power with the other bases. Without legitimacy any influence attempt by a supervisor within a formal organization is likely to be ineffective. Perhaps expert power is only effective when it is matched by a certain degree of referent power.

Willingness to Contribute.

An underlying assumption in the team building model suggests that, one basis for the differentiation of unit members by a supervisor is the willingness of the subordinate to give of himself beyond the organizational requirements in order to enhance the probability of unit goal attainment. Thus, the model predicts that members who have developed a high level of exchange (in-group) with their supervisors will report greater willingness to make such contributions than middle-group or out-group members.

The scale consisted of two items (a) in busy situations how

frequently do you ask to do extra? and (b) how often do you volunteer for special assignments? These items were summed with unit weights to form the scale and used at all time periods of the study.

The results of the analysis of this variable with the job type classification indicated that there was no reliable ($p<.49$) difference between these groups. As hypothesized, the analysis of the exchange groups showed that the in-group members perceived themselves to be significantly ($p<.001$) more willing to contribute to the unit than either the medium-group or low-group members. These results are shown in Table 8.

Summary

Supervisors routinely differentiate among the members of their units. To some members, they appear to be very approachable, helpful, and flexible. Others perceive this in only moderate quantities, and some perceive them to exhibit even less of these qualities. This variation in perception is a leading indicator of the team building activities of the supervisor. A portion of his team provide disproportionate inputs into a supervisor's unit. These members can be continuously counted on to provide the resources necessary for successful completion of unit tasks. But, this high level of contribution would probably not be maintained by the members unless the supervisor provided ample resources and rewards in return. This developed exchange system appears to involve a large network of both behavioral and relationship norms. These norms include: the method of appropriate influence, frequency of support, level of sensitivity, and amount of attention and information received. High levels of trust appear to define an integral characteristic of the in-group linkage. A supervisor would probably not give extra responsibilities, and extra support to members in order to accomplish unit tasks, unless he had enough trust that they would not abuse these responsibilities or use the support to degrade the position of the supervisor in the organization. Similarly, members must trust the supervisors insofar as they have no legitimate recourse if their supervisors decided not to repay their extra inputs with extra resources.

For out-group members, the contingencies appear to be much less subtle. This portion of the team apparently cannot be counted on by the supervisor for any unit contribution beyond the inputs demanded by the organizationally defined job description. The exchange relationship is characterized by a considerable degree of impersonality, little sensitivity, and low levels of trust.

The middle-group members provide the unit with human resources which may serve several useful functions. These members may contribute at somewhat higher levels than organizationally required, but cannot always be counted to make this contribution. This group probably consists of team members who are not willing to make a larger contribution or have not been given the opportunity, either because the supervisor has not recognized their talents and ambitions or already has a well developed set of in-group members.

With the exception of the level of expected behavior reported by supervisor this interpretation of the nature of the exchange linkages is based entirely upon the reports of unit members. The extent to which these perceptions are shared by the supervisors is critical information in justifying this dyadic exchange interpretation. The following section will present the results of the tests concerning the extent to which this differential exchange linkage is perceived by the supervisors.

View of the Linkage by Superiors

In this section, the views of the supervisors, regarding their perceptions of the feelings and perceptions of their unit members as well as their treatment of these members, will be presented. These analyses will consider the same measures which were asked of unit members. The results will provide information regarding the characterization of the various exchange linkages as perceived by supervisors. Such information should provide a basis through which we can begin to distinguish between elements in the exchange that are intersubjectively reliable from those which may reside simply within the heads of the particular raters.

The presentation of the results of the analysis of these measures will follow the same patterns as in the previous section. Since the supervisors view of the activities of members has already been presented, this section will focus on the perceptual and treatment measures.

Perceptual Measures

Each measure included in this section was also asked of members in a slightly different form. For instance, one sensitivity item asked of members was: "How well do you feel that your supervisor understands your problems and needs?" This question was phrased, "How well do you feel that you understand his (the member's) problems and needs?" when it was asked of supervisors. All items were rephrased in this manner in order to obtain this complete set of measures from the supervisor's perspective. In order to maintain congruency, these items were also summed in same manner as the member's. Thus, the scale of work sensitivity, for example, contains the same items from both the member's and supervisor's perspective. Clearly, this decision to maintain conceptual clarity offered interpretability as its benefit. The cost involved the probable reduction of empirical precision. Undoubtedly, a combination rule derived from the analysis of the supervisory data alone could be expected to provide empirically "cleaner" scales for this analysis. This potential cost was deemed acceptable in light of the possible benefits of overall interpretability.

Supervisory Sensitivity Measures.

Three scales were derived from eight items to elicit the supervisor's perceptions of how sensitive he was to his unit members. These scales included work sensitivity (SWS), self-determination (SSD), and personal sensitivity (SPS). From the supervisor's point

Table 8

The Supervisor's View of Sensitivity
By the Three Exchange Groups Over the Three Time Periods

Variable	Mean Sensitivity Exchange Group			Probability	
	Out	Middle	In	Exchange	Time
Work Sensitivity	5.01	5.15	5.35	.64	.05
Self-Determination	10.67	10.66	11.04	.57	.45
Personal Sensitivity	9.44	10.23	10.96	.001	.05

of view there was a strong relationship between the SPS scale and the job type classification. Results of this analysis demonstrated that supervisors reported higher personal sensitivity to coordinators and supervisors of core processes (groups 2 and 3) than the other two groups. Interestingly, these groups contained the supervisory personnel having the largest number of subordinates. The other two scales. SWS, and SSD, showed no reliable relationship to the job type classification.

The team building model hypothesizes that those team members making the largest contribution (in-group) should also receive the largest amounts of sensitivity. The results shown in Table 8 indicate that the only reliable differentiation between the exchange group members over the time periods was in terms of personal sensitivity ($p<.01$). At each time period, and across all periods, the supervisors reported a general increase in sensitivity across the exchange groups from low to high. None of the differences on the remaining two scales, however, were reliable. Similar to the report of members, only one of the sensitivity measures proved to reliably differentiate the exchange groups when the other measures were partialled out. From the supervisor's point of view, the in-group members of his team were the members who received his greatest concern and personal sensitivity to the problems and needs which they faced in their job situation.

Supervisory View of Interpersonal Trust.

In view of the extra duties, responsibilities and visibility assumed by the in-group members of the team, it was hypothesized and demonstrated that these members would and did perceive the highest levels of trust with their supervisors. Similarly, it was hypothesized that the supervisors of these members would report this differential in interpersonal trust, based on the items developed from the descriptive work of Jennings (1967).

The results of the analysis of these items with the job type classification indicate that trust and job type bear no consistent relationship. The only item which reliably differentiated these groups concerned the availability of members to support the supervisor. The top-level administrators (group 1) were perceived to be reliably less available ($p<.01$) than members in the other three job types, by their supervisors. The results of the analysis by exchange groups, however, indicated considerable differentiation. These results are shown in Table 9, and demonstrate that supervisors perceived monotonically increasing levels of trust as the level of exchange reported by members moved from low to high. The differences between the groups on each of these items was reliable ($p<.01$). Based upon the multivariate analysis, three of these items contributed reliable levels of unique variance. These items indicating (a) the member's openness to ideas and suggestions ($p<.01$), (b) the member's willingness to share his ideas ($p<.01$), and (c) the supervisor's propensity to support the member's decisions ($p<.06$), characterized the supervisor's view of the trust relationship. Similar to the

Table 9

The Supervisor's View of Interpersonal Trust
By Three Exchange Groups (T_3)

Variable	Mean Trust Exchange Group			Probability
	Out	Middle	In	Exchange
Openness to ideas	3.17	4.10	4.39	.001
Willingness to share ideas	3.00	3.98	4.66	.001
Availability to give support	3.26	4.02	4.50	.001
Supervisor defends decisions	3.84	3.92	4.65	.006
Protects Supervisor	3.03	3.96	4.23	.001

Table 10

The Supervisor's View of the Bases of Influence
By the Three Exchange Groups (T_3)

Variable	Mean Influence Exchange Group			Probability Exchange
	Out	Middle	In	
Referent	2.65	2.97	3.44	.01
Expertise	3.12	3.55	3.83	.02
Reward	3.08	3.02	3.04	.97
Coercion	2.73	2.48	2.35	.31
Legitimate	3.96	4.08	3.52	.04

member's perception, the key elements appear to be the approachability and openness of the parties along with a willingness to defend the crucial unit members.

Supervisory View of the Bases of Influence.

The set of items used to assess the bases of influence from the supervisor's viewpoint were the same as those asked of the members. In this situation, however, the question was phrased: "This member does the things I suggest or want him to do because ....". Thus, the supervisor was being asked to interpret the motivation of each of his members. The supervisory responses to these five items bore no relationship with the functional classification of job types. As hypothesized, however, supervisors did report that in-group members followed their suggestions based upon referent and expertise power. The Tukey post-hoc analysis showed that each of the groups were reliably different ($p<.05$) regarding expertise power, but the difference between the out-group and medium-group were not reliably different on referent power. All other comparisons between groups on this item were reliable ($p<.05$). Unexpectedly, from the supervisor's perspective, legitimate power discriminated between the in-group and the other two groups. These results appear on Table 10, and show that the supervisors felt that legitimate influence played a lesser role in their relationship with their in-group members than other team members. Another unexpected result was that supervisors did not reliably distinguish among team members on the basis of coercive influence. Although the trend was in the hypothesized direction, the differences were not strong enough to meet the accepted significance standards ($p<31$). Partialling out the effects of inter-relationships among these five items, the multivariate technique, produced results similar to that found in analyzing the member's perceptions. Removing the variance of referent power reduced the other relationships to insignificant levels.

These results indicate that the supervisors were rather accurate in assessing this important aspect of the linkage between themselves and their individual unit members. Similar to their members, they reported that the in-group team members responded to them on the basis of expert or referent power, but added that they were less responsive to legitimate influence attempt. Finally, they did not report the out-group team members to be more responsive to coercive influence. Perhaps the strength of this result found in the report of out-group members was attenuated by the supervisors unwillingness to admit the usage of such influence measures.

Supervisor's View of a Member's Willingness to Contribute.

It was hypothesized that one basis through which a supervisor formed a team, was by differentiating among unit members based on his perception of the willingness of the members to contribute to the unit. From the supervisory perspective, this may indicate the extent to which he could count on a subordinate to do more for the unit when it was necessary to do so. Again, this scale consisted of the same two items from which the member's scale was derived. Unlike

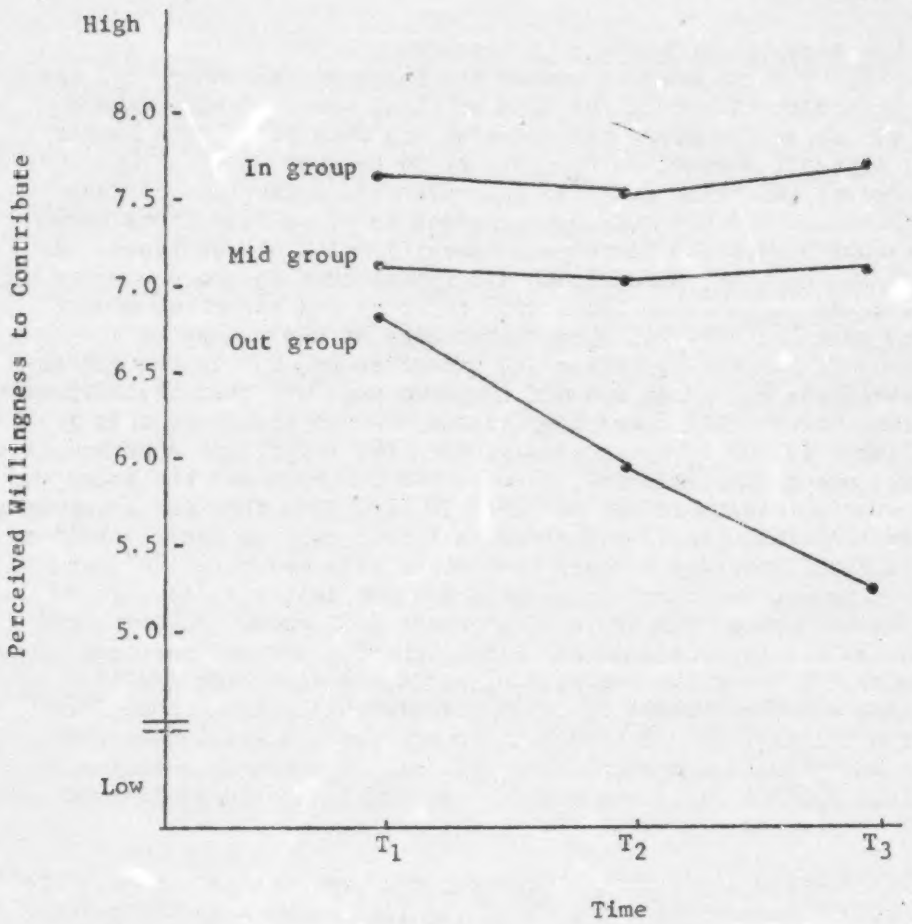

Figure 3. Leader's View of Member Motivation.

the report of members, this scale showed some relationship with the job type classification. The coordinators (group 2) were viewed by supervisors as more willing to contribute than the top-level administrators (group 1). This result was of borderline significance ($p<.06$).

The results of the exchange group analysis, shown on Figure 3 were as hypothesized. Supervisors reported that they counted on members of their in-group to contribute more so than the members of the other exchange groups. Again, both supervisors and members tended to agree about the nature of the linkage. The team is built in such a way that certain members come to be counted on, and in return they receive increased exchange benefits from their supervisors.

Treatment Measures

The section deals with the variables of job needs and support. Based upon the perceptions of the members, those reporting a high exchange relationship also reported receiving higher amounts of attention and job information from their supervisors. These same members also reported a greater frequency of support from their supervisors.

Job Needs Provided Measures.

The items included in these measures are the same as those asked of unit members. The supervisors were asked to estimate how much of each of the items they provided to each of their unit members. These items were summed in the same combination as those which were gathered from the members.

Contrary to the hypothesis, the results of the analysis of these measures demonstrated no reliable differentiation of exchange groups. Neither the measure of attention provided, nor information provided showed any reliable differences among the job type classifications. Equally unreliable were the results based upon the exchange classification. As shown in Table 11, very few differences were found in the reported provision of attention and information by the supervisor to his various team members.

Frequency of Support.

This measure assessed the supervisor's reports regarding the frequency with which they support their team members. This measure contains the same three items asked of members. It was hypothesized that supervisors would support in-group team members more frequently than other members in the unit. That this should occur is partially a matter of equity. If these members do more, the exchange would demand more in return from the supervisor. Further, if in-group members assume more responsibilities for unit outcomes. they probably need additional support in order to successfully accomplish their tasks. For these reasons supervisors should have reported giving them higher levels of support.

The analysis of this scale by the job type classification shows

Table 11

The Supervisor's View of Providing the Job Needs
Of Unit Members by Three Exchange Groups
At Each Time Period

Variable	Mean Provided Exchange Group						Probability Exchange		Time
	T_1			T_3					
	Out	Mid	In	Out	Mid	In	T_1	T_3	
Attention Provided	11.08	9.98	10.39	11.04	10.48	11.52	.46	.57	.17
Job Information Provided	6.58	6.58	7.04	5.96	6.45	6.48	.69	.61	.02

the supervisors reported that they gave reliably ($p<.02$) less support to the top-level administrators (group 1) over the two assessment periods, than to members of the other three job types. Perhaps, at this level, provision of support by the supervisor was not as necessary, since a wide variety of support may have been available to members independently at this level of the organization.

The hypothesis regarding the differential support of team members, based upon the level of the exchange relationship was supported. The supervisors reported giving their in-group members significantly more frequent support ($p<.05$) than the other unit members. No difference was found, however, between the frequency of support given to the members of the medium-group and out-group. Thus, although supervisors did not report being any more responsive to the needs of their in-group members, regarding attention and job information, they did report a higher frequency of support for those members.

Summary

This set of results strengthens considerably over confidence in the characterization of the nature of dyadic linkages within formal organizations. The degree to which various response set mechanisms or interviewer effects may have influenced the pattern of results based upon the reports of unit members alone cannot be known. That a second party, one intimately familiar with the exchange relationship, but bringing along unique response sets and unique interviewer effects, could describe the nature of the linkage in a similar fashion strongly reflects upon the validity of the descriptions.

The pattern of supervisory description toward the in-group members of their team, demonstrated their usage of "leadership" techniques with these members. With these members, who contributed considerable time in unit activities, the supervisors were sensitive, trusting, and supportive. Influence attempts were distinctively lacking in legitimacy overtones, but exphasized expertise and referent power. In most respects, these particular aspects of the linkage tended to be de-emphasized as the exchanges approached the other end of the continuum, toward the "supervision" techniques. Here, legitimacy of authority and greater impersonality (less sensitivity) marked the relationships.

Member's View of Job Outcomes: Problems and Satisfaction

The job problems items were factor-analytically reduced to four scales: problems with supervisory practices, impediments to innovation, problems with daily operations, and structural constraints. Based upon the results of the previous work by Dansereau and his colleagues (1975), the job type classification was expected to be discriminable by only one of the problem factors, namely problems with structural constraints. The results of the analysis of the job problems scales by the job type classification demonstrate the lack of relationship between these variables. As predicted, only the structural constraints factor, was significantly ($p<.03$) related to job type. The pattern of

this result seems to indicate that, within this sample, the higher the level of job classification, the greater the problems with structural constraints.

The results of the analysis of the job problems scales by exchange groups appears in Table 12. As expected, in-group members reported significantly fewer problems with supervisory practices than other team members. At all assessments periods, a monotonically increasing level of these problems was evidenced going from in-group relationships to out-group relationships. These results indicate that one outcome associated with the increasing levels of impersonality (going from in-group to out-group exchanges) in the relationship is an increasing level of perceived problems with the relationship. Further, out-group members also reported much higher levels of problems with innovation and daily operating problems than did the other members of the unit. As expected, no differences were found between the exchange groups on the structural problem scale.

The pattern of these results indicate that, those who maintain in-group status in the unit team find fewer obstacles to task accomplishment than other members. These results tend to highlight the extent to which the utilization of positional resources, by supervisors in behalf of their key members, may attenuate the problems which otherwise could become impediments to the relationship. The multivariate analysis of the four problem factors showed that once the effect of the first factor, supervisory practices, was partialled out, the other scales were no longer reliably related to the exchange variable.

Satisfaction

Several measures of satisfaction were used to assess the outcomes of the exchange relationships. The Role Orientation Index (Graen, Dansereau, and Minami, 1972) was used to assess member's attitudes toward their work and their supervisor. The items for both scales were factor analyzed. The factor derived from these scales were (a) Work, Intrinsic Value, (b) Work, Intrinsic Cost, (c) Supervisor, Interpersonal Relationships, and (d) Supervisor, Technical Competence. The Hoppock Job Satisfaction Blank was used to assess each member's overall satisfaction with the work situation. This instrument contains four items which are summed to produce the scale. Finally, three measures of expectancies were used. These items were used to assess each member's expectancy of receiving a higher performance rating, expectancy of finding a better job, and expectancy of keeping the present job. These variables were collected during different collection periods, as indicated, but only the ROI information was collected more than once during the actual study.

No relationships were found between any of these outcome measures and the job type classification. The results of the analysis of these measures by exchange groups is shown in Table 13. As expected, each of the ROI Supervisor scales indicated that there was a reliable difference

Table 12

Members' Perceptions of Job Problems by Three Exchange Groups at Each Assessment Period

Variable	Time	Mean Problem Level Exchange Group Out	Middle	In	Probability Exchange	Time
Supervisory Practices	T_1	11.19	7.58	6.52	.001	
	T_2	11.73	8.02	7.17	.001	
	T_3	12.04	7.78	6.74	.001	.41
Impediments to Innovation	T_1	8.81	6.95	6.39	.003	
	T_2	8.58	7.12	6.91	.04	
	T_3	8.08	6.98	6.91	.15	.73
Problems with daily Operations	T_1	7.92	6.43	6.91	.03	
	T_2	8.35	6.95	8.09	.02	
	T_3	7.65	6.42	7.17	.09	.03
Structural Constraints	T_1	10.00	10.67	10.87	.53	
	T_2	10.42	10.43	10.61	.96	
	T_3	9.89	10.17	10.48	.76	.37

Table 13

Perceived Satisfaction of Members
By the Three Exchange Groups

Variable	Mean Satisfaction Exchange Group			Probability Exchange
	Out	Middle	In	
Sup., Interpersonal	16.35	19.38	20.73	.001
Sup., Technical	5.80	7.27	8.67	.001
Hoppock	18.74	20.54	22.40	.01
Work, Value	9.97	11.03	11.55	.006
Work, Cost	6.13	6.03	5.75	.73
Expect., Perf. Rating	2.29	3.52	4.46	.001
Expect., Job Mobility	3.52	3.16	3.52	.55
Expect., Keep Job	4.94	4.95	4.92	.94

between the exchange relationship and the description of the supervisor as being competent, both technically and interpersonally. Out-group members described their supervisors as reliably ($p<.01$) less competent on these dimensions. In-group and medium-group members also reported greater intrinsic value in their work than the out-group members, although there was no differential rating of the intrinsic costs of the work. Similarly each group, from out-group to in-group, reported increasing amounts of overall job satisfaction. Finally, of the expectancy measures, only one differentiated the exchange groups. While in-group team members felt that effort would lead to a higher performance rating, middle-group and out-group members did not share this expectation.

The outcomes associated with the exchange relationship are relatively clear. Members who make up the in-group of a team are happier in general. Their increased level of responsibilities and support result in greater satisfaction with the work itself while their relationship of trust and respect with the supervisor results in high ratings of his competence. Each of these areas of satisfaction become diminished as the exchange relationship decreases.

Supervisory View of Job Problems and Evaluation

Two sets of satisfaction outcomes were assessed from the supervisor's point of view. First, the supervisors were asked about the job problems of their unit members. For each member, each supervisor rated the degree to which an item appeared to be a problem to that member. This was a rather difficult task for many supervisors, because in order to be able to perceive certain types of problems, the supervisor would have to be quite familiar with the total content and context of the job situation of each unit member. Many were not so familiar. These items were summed in the same manner as the member reports of job problems. The second outcome measure assessed was a performance evaluation by the supervisor of each unit member. This instrument assessed several performance dimensions such as planning, alertness, etc. These dimensions were highly intercorrelated, and therefore summed to form the employee rating scale.

The analysis of the member's job problems, based upon the supervisor's perception, resulted in a somewhat unexpected finding. The job type analysis revealed a remarkably strong relationship between three of the four problems scales and the job type classification. Perhaps, the supervisor's were, in fact, asked an impossible set of questions and could only respond in terms of guesses, based upon job classification. Whatever, the difficulty, the analysis of job problems by exchange groups, also showed relatively weak relationships. These results are shown in Table 14, and demonstrate that the only differentiation occurred on the first problem factor. Supervisors could perceive when their members were having problems with supervisory practices. These results appear to indicate that supervisors are either unable to perceive that their unit members may have very different types of problems or are unwilling to admit it.

Table 14

Supervisors' Perceptions of Members' Job Problems
By Three Exchange Groups at Each Assessment Period

Variable	Time	Mean Problem Level Exchange Group			Probability	
		Out	Medium	In	Exchange	Time
Supervisory Practices	T_1	9.23	7.52	7.78	.04	
	T_2	9.85	7.50	7.30	.001	
	T_3	9.27	7.67	7.83	.05	.13
Impediments to Change	T_1	7.77	6.90	7.87	.16	
	T_2	7.12	6.53	7.39	.24	
	T_3	7.54	6.67	7.17	.26	.004
Problems with Daily Operations	T_1	7.58	6.60	7.52	.07	
	T_2	7.12	6.48	7.44	.15	
	T_3	7.15	6.40	7.22	.14	.19
Structural Constraints	T_1	9.54	9.73	9.26	.78	
	T_2	9.50	9.65	9.04	.60	
	T_3	10.23	10.05	9.65	.78	.01

The result of the employee rating scale was considerably less ambiguous. The supervisors report bore no relationship to the job type classification ($p<.39$) but reliably differentiated unit members. Out-group members received the lowest evaluation (30.11), followed by the middle-group (33.54), and then the in-group members (37.86). These differences in means were reliable ($p<.001$). This high evaluation of the performance of in-group team members may indicate a major benefit to the supervisor for his extra time spent to develop such members and to support them. These members cannot only be counted on to do more, but to do it more to the liking of the supervisor.

Demographic and Structural Variables

A final issue concerns the extent to which demographic or structural variables besides job type, may have influenced the differential exchange characteristics found in this sample. The analysis of these variables with the exchange groups demonstrated that no reliable relationship was found between any of these variables and the exchange categories. In short, in-group members were not younger/older, more or less educated, etc. than the other group members in this sample.

A slightly different hypothesis would suggest that the relationship of the demographic variables to the exchange process could be somewhat more relative in nature. Specifically, it could be that the similarity of demographic characteristics between a member and supervisor would differentiate between the groups. This hypothesis assumes that, given a choice, a supervisor would select members, into his in-group, who were similar to him in age, education, background, etc. Similarly, the demographics of out-group members would be most unlike the supervisors. Further, assuming the stability of the dyadic relationship over relatively long periods of time, these differences in demographic similarities should be evident even when a member is long established in a unit.

In order to test this alternative hypothesis each member was paried with his supervisor. The member's demographics were then subtracted from his supervisor's and the absolute value of the difference was taken. All absolute differences were summed within exchange groups. None of these differences reliably differentiated among the exchange groups. In-group members were not demographically more similar to their supervisors than other group members.

DISCUSSION OF LOWER DYAD

The present approach differs from its predecessors in that it assumes hetergeneous behaviors both from the supervisor and unit member. Unlike the "average leadership style" approach (see Fleishman and Simmons, 1970), it does not assume that supervisory behavior is consistent across unit members, nor that member reactions to it are essentially the same. The unit is not the appropriate level of analysis for this approach. Unlike the "moderator model" (House and Dessler, 1974) this approach does not assume that leader-behavior is merely a perceptual variable, operating solely within the

heads of unit members. Further, the present approach does not assume that these perceptions, analyzed at the individual level, allow interpretation back to the supervisor's style of behavior. Rather, the present approach assumes that supervisors may act differently toward each unit member and that unit members may differ in their reaction to him. The appropriate level of analysis is not the work unit nor the individual, but the vertical dyad. Finally, the present approach does not assume that the differentiation of the unit members ceases after a certain period of time. Rather, this process is one of continual building and adjustment of the norms which serve to identify and stabilize the relationship over a wide variety of situations.

The future development of the present working model will largely depend upon our capacity to generate hypotheses about the nature of this norm development. Social exchange theory suggests that this continuing team building model may be viewed within a larger framework containing possibly as many as four phases. These phases, according to Thibaut and Kelly (1959) and Secord and Backman (1964), include the processes of sampling, bargaining, commitment, and institutionalization. Sampling involves the search for the most profitable of the social relationships available. Within the present context, this process may occur only in the highly truncated social situation called the "selection procedure." It is not unusual, for instance, for a supervisor to interview only a few candidates who have been referred by Personnel for a position. The nature of the position to be filled would probably set some skill baseline below which a candidate would not be referred by Personnel. Above this level, however, a supervisor may base the decision upon appearances, similarity of background, and the like. Although formally this may appear to be a relatively straight forward process, within the framework of team building in vertical dyads, many boundary conditions may come into play. Factors such as, the formal unit structure, the weight given to supervisory inputs into the selection procedure, and relative mix of persons already in the unit, add considerable complexity to the eventual sampling decision. These complexities may have hidden any reliable relationship between demographics of leader-member pairs in the present study.

The second stage of the social exchange framework involves the bargaining of goods. This stage, within the broad framework of social interaction, tends to be extremely provisional. That is, the parties to the relationship are just beginning to find out the nature of the costs and benefits. Typically this stage of bargaining is noted for superficiality and frequently does not advance beyond this level before one of the parties dissolves the relationship. Within the present context of leader-member relationships, where the cost of breaking the relationship may be quite high for either party (e.g., finding another place to work), this stage is likely to be both less provisional and more subtle. In both the present study and the Dansereau, Graen and Haga (1975) study the bargaining categorization was found to be both dramatic and fairly stable over the period

of their assessments. Based upon the exchange framework, however, certain additions may be necessary. First the bargaining process probably contains many more elements than those employed by the authors. Second, since the leaders must take part in the exchange, more complete documentation of the process itself should be gathered from this point of view as well.

The third stage of exchange, commitment, deals directly with the stabilization of social relationships. According to Homans (1961) this stage will only occur when the status between the parties is about equal. Jacobs (1971) also suggested that the reduction of status differentials is a key element in distinguishing leadership from supervision exchange. The results of the team building model indicate that the commitment process included a wide variety of behavioral and interpersonal norms. The relative weight of these norms and the boundary conditions of the process still need greater clarification. The fourth phase, institutionalization, deals with the change in a relationship as it moves from the stage of informal agreement to one of formal organizational status. For instance, a supervisor may decide to departmentalize unit activities and formally vest his cadre members in the roles of department heads. More frequently, this process of institutionalization may simply involve the creation of the role of "assistant to," or the like. While the creation of a formal role, may only rarely occur in the team building process, it may be an important phase in that when it does occur it probably sets some of the boundary contitions for other stages of the total process.

Beyond the theoretical implications, the present results also suggest certain interpersonal problems with which supervisors must be able to cope.

Based on the present findings certain normative statements can tentatively be made concerning the development and maintenance of vertical linkages within managerial units. First, if supervisors expect to develop certain team members to the point that they will accept a larger area of responsibility for unit outcomes, these supervisors must be willing to be flexible in their demands and willing to aid these members when problems develop. Further supervisors must accept the increasing interdependencies which will develop as the members enlarge their scope of activities. The supervisors' organizational control prerogatives will become restricted, for instance frequent attempts at procedural coercion by supervisors would probably destroy an in-group relationship. Further the increased interdependency will need to be buttressed by high levels of trust instead of closer scrutiny of activities. Finally, this type of exchange will demand a great deal of sensitivity and attention to the interpersonal and job needs of these members of the team.

The responsibilities of the supervisor to certain other team members may be considerably less interpersonally complex. Some

members may be quite content to "put in their eight hours" and go home. While these members may be adequate performers, the supervisor would be remiss to expect additional efforts, even in emergency situations. Contrary to the cadre members of the team, no psychological contract is involved with these members, the only contract is organizational. Thus, a supervisor cannot expect interpersonal influence attempts to be effective. These low exchange or out-group members are not likely to respond to usage of referent or expertise power, but rather to the legitimate authority of the supervisor along with his ability to invoke certain organizational rewards or sanctions.

Perhaps the difficult situation for both leaders and members, occurs in broad area between these extremes of in-group and out-group membership. From the perspective of the middle-group members, several conditions are likely. First, the member may actually wish to develop his role further but finds that the supervisor does not need such development in his team, has not noticed the attempts of the member, or simply does not have the skills to further the process. In any of these conditions the member is likely to become frustrated and either decrease his inputs or move to a unit where his talents will be rewarded. In another circumstance the member may be included in this group contrary to his own preferences. Although the member is willing to contribute beyond the contractual conditions of the organization in certain circumstances, he would prefer not to be bothered. Most difficult for the supervisor, are probably those persons who are at the core of the middle-group. While these members may not be willing, or perhaps not able, to make a total commitment, they do share many of the same needs and desires of the in-group members. The major supervisory problem in these instances appears to be the maintenance of equity. This includes equity not only within members of this group but also between members of this group and other team members.

Analysis of Upper Dyad

The basic analysis consisted of various 2-way Multivariate Analyses of Variance on related sets of dependent variables (Bork, 1963). The independent factors in each case were (a) Leader vertical exchange and (b) job type. Leader vertical exchange contained three levels (Out, Middle, and In Superiors) while job type consisted of three levels and functioned as a control variable. This analysis controls for job type on the effects of leader vertical exchange and tests for possible interaction. MANOVA was chosen for several reasons. MANOVA allows for overall tests of differences in mean vectors of the independent variable, given correlated dependent variables. It is possible to have significant univariate tests on a number of correlated dependent variables, while there is no significant difference overall (accounting for the correlated dependent variables) among levels of the independent variables. MANOVA allows one to make test of multiple dependent variables at a given significance level (say p=.05); whereas, multiple univariate tests at the .05 level will increase the chance of Type I error well beyond the .05 level for the set of tests.

The classification of superiors into three groups based upon their vertical exchanges with their respective bosses was accomplished by trichotomizing the leader vertical exchange scale into approximately equal numbers of superiors. This produced (a) 9 low superiors of 29 members (Out-superiors or under supervision exchanges), (b) 10 middle superiors of 38 members (Middle-superiors), and (c) 8 high superiors of 36 members (In-superiors or under leadership exchange).

RESULTS ON UPPER DYAD

Procedural.

As a test of the validity of operationally defining superior's vertical exchange with his boss employing the above-described procedures a one-way analysis of variance was performed on the data relevant to superiors only (Winer, 1962). The results are presented in Table 15. Though the cell frequencies for Out-superiors, Middle-superiors, and In-superiors were quite small, the results were rather strong. According to reports by their immediate superiors (bosses), In-superiors achieved higher performance evaluations, higher motivation ratings, greater negotiating latitude, allowed more referent influence by the boss, and experience less severe problems with their boss than Out-superiors. Turning to the self-reports of superiors, In-superiors received more self-determination, higher sensitivity, and greater support from their bosses than Out-superiors. Agreeing with their bosses, In-superiors reported higher motivation to contribute, allowing more referent influence by the boss, and experiencing less severe problems with their boss than that reported by Out-superiors. Moreover, In-superiors reported higher satisfaction with the overall job situation and with interpersonal relations with their boss and the technical competence of their boss than did Out-superiors. Finally, In-superiors reported stronger effort-performance expectancies than Out-superiors. Thus, these data were interpreted as providing support for the classification of In, Middle, and Out superiors.

Activities

Member's View.

Table 16 displays the mean involvement levels on the five managerial activity factors reported by subordinates of In, Middle, and Out superiors at two time periods. Multivariate Analyses of Variance (MANOVA) were run on the five dependent variables (activity factors) at both time periods (see M values in Table 3), indicating significant differences overall among mean vectors of In, Middle, and Out superiors (M_1=$p<.025$; M_3=$p<.027$). The first variate at time 1 accounted for 14% of the total variance (60% of the canonical variation) while the second variate accounted for 9% of that total variance. At time 3, the single significant variate accounts for 21% of the total variance (88% of the canonical variation).

Considering the weights of each dependent variable on the first dimensions, administrative-decision making activities load highest

Table 15

Job Situation Indicies for In, Middle, and Out Superiors

Index	Mean			Probability
	Out (9)	Middle (9)	In (6)	
Boss Report:				
Performance Evaluation	28.1	34.1	37.7	.01
Willingness to Contribute	6.4	7.1	7.8	.04
Negotiating Latitude	12.1	13.8	14.7	.002
Referent Influence	2.4	3.6	3.7	.02
Problems with Boss	9.9	8.2	6.7	.05
Superior Self-Report:				
Self-determination	8.9	10.9	11.3	.002
Boss' Sensitivity	6.7	10.0	10.3	.000
Boss' Support	11.2	15.1	16.4	.001
Willingness to Contribute	3.7	5.2	4.7	.05
Referent Influence	2.2	3.1	4.2	.004
Problems with Boss	10.6	7.3	6.9	.04
Job Satisfaction:				
Overall	19.3	21.6	23.0	.04
Boss Relations	16.2	20.4	21.0	.000
Boss' Competence	6.4	7.3	8.4	.03
Work Itself	10.4	11.7	11.8	.12
Performance Expectancy	2.4	4.1	4.0	.001

Note.--Numbers in parenthesis are cell frequencies. Department heads were omitted from this analysis because not all of this information was collected from and about them.

followed by planning activities: boundary spanning activities load highest on the reverse side of this dimension. The second dimension also appears to separate boundary spanning but this time from liaison activities, each contributing strongly to this dimension.

Univariate probabilities (p) also are shown in Table 16 for each activity factor. Examination of these probabilities and their corresponding means shows that members of In-superiors report higher involvement in administrative-decision making behavior than that reported by members of Middle- and Out- superiors. It is also clear that members of Out-superiors report that they perform lower levels of planning activities than subordinates of Middle- and In- superiors.

Leader's View.

Expected mean involvement in managerial behavior by members reported by In, Middle, and Out superiors is shown in Table 17. MANOVA's performed at both time periods yielded significant results (M_1=p<.017; M_3=p<.0005). This analysis produced one significant canonical variate at time 1 (p<.017--Barlett's test) and two significant variates at time 3 (p_1<.0005; p_2<.007). The single variate at time 1 accounted for 21% of the total dependent variance, whereas the two variates at time 3 accounted for 21% (56% of the canonical variance) and 17% of the total variance, respectively. On the first variate administrative-decision making activities, as was the case in member rated activities, showed the highest loading followed by liaison activities at time 1 and managing activities at time 3. The second dimension at time 3 appeared to separate boundary spanning (highly positive) from liaison and managing activities (moderately negative).

Analysis of individual activity factors shows results similar to those reported by members. In-superiors report higher levels of planning expected from their subordinates than do Middle- or Out-superiors at time 1. Superiors' results also show agreement with members' results in that there were differences in administrative-decision making activity expected of members under In-superiors (highest) compared to members under Out-superiors (lowest). At time 3, boundary spanning activities showed reliable differences among the three groups (p<.025). Finally, at time 1, In-superiors reports showed reliably (p<.008) higher liaison activities from their members compared to Middle- and Out- superiors. Results of members' reports did not confirm these latter two findings on the expectations of superiors.

Job Problems

Results of job problems experienced by members and reported by unit members and superiors independently are presented in Table 18. MANOVAs performed on the eight dependent variables (four job problem factors each reported by leaders and by members) showed that leader exchange differences were highly significant (M_1=p<.0079; M_2=p<.003; M_3=p<.0003). At each of the three time periods, the first canonical

Table 16

Involvement in Managerial Behavior Reported by Members of Units Headed by In, Middle, and Out Superiors.

	Time 1				Time 3			
	Mean				Mean			
Activity	Out	Mid	In	P	Out	Mid	In	P
Managing	10.48	11.13	10.89	.60	10.66	11.39	11.00	.46
Boundary Spanning	8.14	10.11	9.00	.03	8.93	9.87	9.58	.39
Administration	7.90	8.76	9.53	.01	7.55	8.76	9.58	.001
Planning	11.76	13.29	13.72	.03	11.41	13.61	13.72	.01
Liaison	7.83	8.08	8.58	.24	7.93	8.68	8.67	.17
MANOVA M				.025				.027

Note.--M equals the probability of group differences (IN -MID-OUT) given the relationships among the dependent variables using 2-way MANOVA (controlling for different job types). P=Univariate significance for three exchange groups.

Table 17

Expected Involvement in Managerial Behavior of Members Reported by In, Middle, and Out Superiors

Activity	Time 1 Mean Out	Mid	In	P	Time 3 Mean Out	Mid	In	P
Managing	11.76	12.47	12.83	.32	13.03	12.00	12.69	.27
Boundary Spanning	10.00	10.79	11.75	.12	9.90	11.92	10.39	.03
Administration	7.99	9.18	10.08	.001	7.52	8.63	9.92	.001
Planning	15.28	15.13	16.42	.02	14.69	15.21	15.11	.74
Liaison	8.79	9.18	10.11	.01	8.93	8.95	9.69	.13
MANOVA M				.017				.0005

Note.--M equals the probability of group differences (IN-MID-OUT) given the relationships among the dependent variables using 2-way MANOVA (controlling for different job types). P=Univariate significance for three exchange groups.

Table 18

Severity of Job Problems of Members Reporting to In, Middle, and Out Superiors

Problem Factors	Time 1				Time 2				Time 3			
	Mean				Mean				Mean			
	Out	Mid	In	P	Out	Mid	In	P	Out	Mid	In	P
Member's Report:												
Supervisory Practices	9.03	8.34	7.25	.11	10.07	8.34	7.94	.07	10.17	8.16	7.75	.03
Impediments to Innovation	7.41	7.68	6.64	.23	7.69	7.89	6.53	.05	7.62	7.29	6.64	.27
Problems with Daily Operations	6.31	7.21	6.92	.29	6.72	7.82	7.58	.14	6.28	7.26	6.81	.26
Structural Constraints	9.52	11.05	11.01	.06	9.72	10.5	11.08	.13	9.79	10.21	10.5	.59
Superior's Report:												
Supervisory Practices	7.76	8.32	7.92	.73	7.72	8.92	7.61	.07	7.31	8.92	8.0	.07
Impediment to Innovation	7.45	8.18	6.44	.01	7.14	7.68	5.92	.002	7.41	7.79	5.94	.002
Problems with Daily Cperations	6.28	7.92	6.94	.01	6.41	7.71	6.58	.01	6.76	7.47	6.14	.02
Structural Constraints	8.94	10.53	9.11	.03	9.76	9.97	8.83	.13	9.45	11.05	9.44	.03
MANOVA M				.003				.0003				.0003

Note.--M equals the probability of group differences (IN-MID-OUT) given the relationships among the dependent variables using 2-way MANOVA (controlling for different job types). P=Univariate significance for three exchange groups.

Table 19

Uses of Bases of Power by In, Middle, and Out Superiors, Reported by Both Superiors (used) and Members (received)

Reported Power Bases	Mean			P
	Out	Mid	In	
Used:				
Referent	2.76	3.21	2.97	.13
Expert	3.07	3.66	3.69	.01
Reward	2.59	3.58	2.75	.0001
Coercive	2.24	1.53	2.69	.13
Legitimate (Bureaucratic)	4.24	3.61	3.94	.02
Received:				
Referent	2.28	2.92	3.28	.002
Expert	3.21	3.45	3.97	.02
Reward	2.41	2.82	3.05	.04
Coercive	2.07	2.03	2.19	.78
Legitimate (Bureaucratic)	4.28	4.24	4.19	.92
MANOVA M				.0001

Note.--M equals the probability of group differences (IN-MID-OUT) given the relationships among the dependent variables using 2-way MANOVA (controlling for different job types). P=Univariate significance for three exchange groups.

variate was reliable ($p_1<.008$; $p_2<.0003$; $p_3<.0003$), and accounted for 25%, 36% and 39% of the respective variances. At time 2, a second significant variate ($p_2<.026$) accounting for 19% of the variance; while, at times 1 and 3, the second variate approached significance ($p_1<.078$; $p_3<.071$) and accounted for 15% and 16% of their respective variances. In all cases, the first variate accounted for the major portion of the canonical variation (62% to 72%). At times 2 and 3, the total variance accounted for reached 55%.

Of the two separate types of significant variates above, the first is weighted heavily by members' views of supervisory problems and daily operations. The second source of variation is weighted heavily by both member and superior views of supervisory problems, although they are contributing with contradictory loadings. Also, loading on this dimension is members' views of impediments to innovation.

Superiors' reports showed that their members reporting to In-superiors confronted less severe problems with impediments to innovation and change than those reporting to Middle-or Out-superiors. Superiors' reports also showed that members reporting to Middle-superiors confronted more severe structural problems and problems with daily operations than members reporting to either In- or Out-superiors. These differences among groups were rather consistent in both magnitude and pattern over the three points of time. In contrast to the results of superior's reports, results on reports of members demonstrate fewer reliable differences. Although the pattern of means on severity of impediments to innovation and change are similar to those produced by the data from superiors, only at time 2 do these differences reach an acceptable level ($p<.05$). Thus, with regard to job problems, different viewpoints do not provide congruent perceptions. Speculation regarding possible factors responsible for this lack of congruent perceptions will be offered later.

Bases of Power

Results on the bases of power by In, Middle, and Out-superiors, reported by both leaders and members is displayed in Table 19. A MANOVA of the 10 dependent variables (five bases from each point of view) for the three exchangegroups yielded significant results ($M=p<.0001$). Two significant dimensions of canonical variation were detected in this analysis (Bartlett's test of successive discriminant dimensions were significant at $p=<0001$ and$p=<0039$ respectively). The two dimensions accounted respectively for 49% and 31% of the total variance. Reward power contributed heaviest positively and coercive power contributed heaviest negatively to dimension one. The second dimension was characterized by expert power (member reported) and referent power (superior reported).

Superior's reports showed a number of significant univariate findings. Expert, reward, and bureaucratic bases showed reliable differences among the three exchange groups. In terms of pair-wise comparisons, both In- and Middle- superiors reported using levels of

Table 20

Superior and Member Perceptions of Leadership Attention, Information, and Support Given by In, Middle, and Out Superiors

Measure	Time 1 Mean Out	Mid	In	P	Time 3 Mean Out	Mid	In	P
Leader Behavior Index (reported by Members)								
Attention received	13.86	14.68	15.53	.23	12.45	14.29	15.06	.04
Job Information received	6.03	6.71	6.56	.59	5.97	5.87	6.42	.60
Leadership Support received	12.17	14.08	14.11	.04	11.41	13.84	14.14	.002
Leader Attention Index (reported by Supervisor)								
Attention given	10.52	10.97	9.14	.10	10.72	11.53	9.47	.08
Job information given	6.45	7.18	6.25	.19	5.76	6.66	6.22	.29
Leadership support given	14.17	14.11	14.00	.95	14.07	14.00	14.00	.99
MANOVA M				.248				.019

Note.--M equals the probability of group differences (IN MID OUT) given the relationships among the dependent variables using 2-way MANOVA (controlling for different job types). P=Univariate significance for three exchange groups.

Table 21

Member Self-determination and the Supervisor's Sensitivity for In, Middle and Out Superiors reported by both Members and Superiors

	Time 1				Time 3			
	Mean				Mean			
	Out	Mid	In	P	Out	Mid	In	P
Work Sensitivity received	5.0	5.37	6.06	.03	5.03	5.18	5.92	.05
Self-determination perceived	9.24	10.53	10.08	.01	9.41	10.79	10.25	.01
Personal Sensitivity received	8.52	8.92	9.44	.30	8.45	8.97	9.56	.15
Work Sensitivity given	5.24	5.61	5.42	.56	5.17	5.26	4.83	.37
Determination allowed	10.28	10.95	10.33	.17	10.66	10.97	10.64	.50
Personal Sensitivity given	10.41	10.26	10.53	.76	10.07	9.87	10.72	.05
MANOVA M				.066				.0024

Note.--M equals the probability of group differences (IN MID OUT) given the relationships among the dependent variables using 2-way MANOVA (controlling for different job types). P=Univariate significance for three exchange groups.

expert power which were higher than that reported by Out-superiors; both In- and Out-superiors reported lower levels of reward power than Middle-superiors, and Out-superiors reported a higher level of bureaucratic power than that reported by Middle-superiors. Member's reports also showed a number of significant results. Referent, expert and reward bases demonstrated overall statistical reliability on these reports. Again considering pair-wise comparisons, members reporting to In-superiors reported a higher level of each of these bases than that reported by members reporting to Out-superiors. Thus, it appears that both members and superiors perceived differential use of expert and reward bases of power and both perspectives concur that members of Out-superiors receive less expert power.

Attention, Information, and Support

Leader and member perceptions of leadership attention, information, and support given by In, Middle, and Out superiors produced the results shown in Table 20. MANOVAs performed on the six dependent variables (three dependent variables from two views) across the three exchange types at two time periods yielded significance only at time 3 ($M=p<.015$). Thus, the results for time 1 were too unreliable. The analysis indicated that 30% of the variance in the six dependent variables can be accounted for by our independent variable. However, only the first canonical variate, accounting for 77% of the total canonical variation, and 23% of the total variance is significant (Bartlett's test). Three dependent variables contribute heavily to this dimension: (a) member's report of support received, (b) superior's report of attention, and (c) superior's report of information given.

Regarding support, members under Out-superiors perceived less support from their leaders than subordinates under Middle- and In-superiors. Reports of superiors, however, did not show this difference. Concerning attention, members of Out-superiors reported less attention from their superiors than that reported by members under In-superiors at time 3. Again, reports of superiors, although only approaching significance, displayed Middle-superiors members receiving the most attention and In-superiors' members receiving the least. This may be an example of the inability of superiors to see the effects of their upper dyad on their subordinates interpretation of their leader's behavior. Neither members nor leaders reports showed reliable differences in amount of information received by members.

Supervisor Sensitivity and Self-Determination

Results on member Self-determination and Supervisory Sensitivity for In, Middle, and Out superiors reported by both subordinates and supervisors are presented in Table 21. MANOVAs for the six dependent variables (three from each view) across the three exchange groups at two time periods resulted in near significance at time two and strong significance at time 3 ($M_2=p<.066$; $M_3=p<.0024$). Only one source of canonical variation was significant at time 2 (accounting for 26% of the variance); whereas, at time 3, both canonical variates were significant ($p_1<.002$; $p_2<.032$ utilizing Bartlett's test) accounting for 31% (58% of the canonical variation) and 23% of the variance in

our dependent variables. Members' and superiors' reports of self-determination and superiors' reports of personal sensitivity were the heaviest contributors to the first dimension, while personal sensitivity from both views contributed heaviest to variation in the second dimension.

Members of In-superiors reported higher supervisor sensitivity to their work than did members of Out-superiors. Results from superiors of the various exchange types, however, did not reveal significant differences in their sensitivity to the work of their members. Regarding Self-determination of the members, subordinates of Out-superiors showed significantly less Self-determination than those of Middle- or In- superiors. Again, reports of superiors failed to show this difference based on their exchange type. Finally, the only significant difference in personal sensitivity was that reported by superiors. In-superiors showed highest personal sensitivity and Middle-superiors showed the lowest. This last result was only significant at the final time period and was not confirmed by the results on members' perceptions.

Satisfaction and Performance

Results on the satisfaction of subordinates under In, Middle, and Out-superiors are shown in Table 22. MANOVAs were performed on the dependent satisfaction measures across the three exchange groups at two time periods and yielded overall significance at both times (M_1=p<.043; M_3=p<.001). At time 1, only one canonical variate was significant (accounting for 20% of the variance) while at time 3, the first canonical variate was significant (p<.001), accounting for 24% of the variance (76% of the canonical variation) and the second variate (accounting for 8% of the variance in dependent variables) approached significance (p<.075). The time 1 variate was composed of satisfaction with supervisory technical competence and to a lesser degree satisfaction with the intrinsic value of the work. The time 2 variate separated satisfaction with the technical competence of the supervisor from satisfaction with interpersonal relations with the supervisor and satisfaction with the intrinsic value of the work.

Univariate results showed that the Hoppock yielded no significant differences in satisfaction reported by members of the three exchange groups. The ROI, however, showed significant difference on several dimensions. First, members of the In-, Middle-, and Out-superiors, respectively, reported progressively lower satisfaction with the technical competence of their superior. Next, members reporting to Out-superiors reported significantly less satisfaction with intrinsic value in their work. Finally, the results showed a relationship (p<.055) for satisfaction with interpersonal relations with the supervisor, in which Out-superiors' members reported lower satisfaction with their supervisory interpersonal relations.

Job performance results showed no significant differences among members reporting to the three superior exchange types. Therefore,

Table 22

Reported Satisfaction of Subordinates Under In, Middle, and Out Superiors

Satisfaction With	Time 1				Time 2			
	Mean				Mean			
	Out	Mid	In	P	Out	Mid	In	P
Supervisor Interpersonal Relations	18.07	19.45	19.17	.13	17.41	19.18	19.42	.06
Supervisor Technical Competence	6.41	7.16	8.14	.003	5.79	6.82	8.03	.0001
Intrinsic Value of the Work	10.14	11.24	11.36	.03	9.72	11.37	10.94	.01
Overall Satisfaction (Hoppock)	19.07	21.13	20.64	.09				
MANOVA M				.043				.0008

Note.--M equals the probability of group differences (IN MID OUT) given the relationships among the dependent variables using 2-way MANOVA (controlling for different job types). P=Univariate significance for three exchange groups.

performance ratings by superiors did not reveal differences in their evaluations of the job performance of their members. Thus, superiors rating did not show either (a) systematic basis related to the quality of the upper dyad or (b) member effectiveness related to the upper dyad.

Summary of Results

1. Leader Vertical Exchange (our measure of the quality of the upper dyad) was quite stable over an eight-month period (r_{13}=.86, test-retest correlation).

2. Leader Vertical Exchange (LVE) showed strong differentiations on variables describing a leader's job situation, his exchange with his boss (his immediate superordinate), and his work attitudes. Leaders with low LVE scores (Out-superiors) showed consistently the least positive descriptions; whereas leaders with high LVE scores (In-superiors) demonstrated the most positive descriptions with equal consistency. Leaders with intermediate LVE scores (Middle-superiors) showed descriptions which were between the above two groups and closer to those of In-superiors.

3. Managerial activity was differentiated by leader vertical exchange in terms of both (a) present level of involvement in activities by members and (b) expected level of involvement. Of the five activity factors, only administration-decision making and planning revealed consistent differentiation over time on (a) above, and only administration-decision making showed this consistency over time on (b) above (leader expectations regarding his member's job behavior).

4. Managerial job problems concerning impediments to innovation and change was differentiated by leader's vertical exchange. This was the case for all three times as reported by the leader and at time 2 as reported by the member. Members reporting to In-superiors were seen as confronting less severe problems in bringing about changes than those experienced by Out- and Middle- superiors.

5. Bases of managerial influence downward were differentiated by leader's vertical exchange with boss. In-superiors used higher levels of expert power than Out-superiors, and members reporting to In-superiors received higher levels of both expert and reward power.

6. Leadership attention and support received by members were differentiated by leader's vertical exchange with boss; however, leader's reports of providing these outcomes fail to show agreement and tended to show opposite trends.

7. Self-determination and leader sensitivity received by members also show the effect noted in (6) above.

8. Managerial satisfaction was differentiated by their leader's vertical exchange with boss. Members reporting to In-superiors

showed more positive attitudes toward the competence of their leader and the intrinsic value of the work itself than those members who reported to Out-superiors.

9. Managerial performance was not differentiated by their leader's vertical exchange with boss.

DISCUSSION OF UPPER DYAD

This study employed the procedures developed by Cashman and his colleagues (in press) to classify higher dyads on the basis of the leader's vertical exchange with his boss. Following this procedure leaders were classified into one of three groups: (a) In-superiors (leaders who exhibited evidence of leadership exchanges with their respective bosses), (b) Out-superiors (leaders who exhibited evidence of supervision exchanges with their respective bosses), and (c) Middle-superiors (leaders who exhibited evidence of neither polar exchanges with their respective bosses). This procedure was used to classify a dimension of the quality of the upper dyad, namely, leader's vertical exchange upward. Using this classification of upper dyads, the contribution of this dimension of the upper dyad to the behavior, attitudes, and treatment of managers who were subordinates in corresponding lower dyads was investigated. In this way, the impact on his behavior, attitudes, and treatment of a dyad to which a subordinate manager was not a party was studied.

Overall the results agree with and extend the findings of Cashman and his associates regarding the contributions of the leader vertical exchange in upper dyads to the job situation of both members and their leaders in corresponding lower dyads. In agreement with Cashman's findings, this study found that members reporting to superiors experienced less severe job problems involving impediments to innovation and change than those reporting to Out-superiors. In contrast, job problems involving structural constraints failed to replicate in the present study. In agreement with Cashman's findings, leadership attention and sensitivity were differentiated by the upper dyad. Members reporting to In-superiors received more leadership attention and greater sensitivity from their leader toward their work than members reporting to Out-superiors. Finally, in agreement with the results from the Cashman study, members reporting to In-superiors showed higher satisfaction with the technical competence of their leader than those members reporting to Out-superiors.

Going beyond the investigation by Cashman and his colleagues, this study found that the upper dyad also differentiated (a) the behavior of members in terms of level of involvement in activities, (b) the behavioral expectations of superiors regarding level of involvement in activities, and (c) the bases of influence employed by superiors. The single activity factor which demonstrated the most consistent and reliable differences among the upper linkage groups was administration-decision making. Compared to Out-superiors, In-superiors expected more of this activity from their members and

their members showed more of this activity. The two bases of influence which showed the most consistent and reliable difference among the upper linkage groups were expert and reward bases. Compared to Out-superiors, In-superiors attempted to use these two bases more and their members received more influence from these bases.

Based upon the results of the Cashman et al. study and the present investigation, we can venture to construct a scenario describing the upper dyad and its relationships to the lower dyad. Admittedly, such a scenario must be speculative at our present state of knowledge, but hopefully, it may have heuristic value.

A Scenario

Upper dyads are differentiated into leadership (In) exchanges, supervision (Out) exchanges, and intermidiate (Middle) exchanges and these exchanges are quite stable over time. Moreover, the outcropping of these exchanges are several and clearly defined. Subordinate members of the upper dyad who develop leadership exchanges with their bosses (In-superiors) have greater influence with their bosses and receive more latitude, support, and attention from their bosses than Out-superiors. Middle-superiors develop exchange relationships which produce outcomes somewhat more favorable than the Out-superiors. In addition, the attitudinal differences indicate that In-superiors experience a much more desirable situation overall and especially regarding working relations with their bosses than Out-superiors. Again, Middle-superiors express attitudes which are somewhat more positive than Out-superiors.

These superiors, who are in linking-pin positions, therefore possess different amounts of organizational resources and these amounts depend upon the vertical exchange with their bosses. Thus, In-superiors, who, having established strong ties with their bosses, are in better positions to facilitate the accomplishments of their subordinates than Out-superiors. On the other hand, Out-superiors, who have developed weak ties with their bosses, are in weaker positions to aid their member's efforts to achieve performance goals than even Middle-superiors.

As a chain cannot be stronger than its weakest link, a linking-pin cannot be stronger than its weakest vertical dyad linkage. In the case of linking-pins, enriched exchanges in the upper dyads are related to enriched exchanges in the lower dyads and deprived exchanges in the upper dyads show concommitantly deprived exchanges in the lower dyads.

In a sense, this quality of the upper dyads, (relatively enriched to relatively deprived) contributes to the quality of life of members in lower dyads. The relative richness or scarcity of organizational resources in the environments of such members lies beyond their control in the upper dyads. They may experience the benefits or suffer the consequences but they seldom have opportunities to influence the development of exchanges within upper dyads. Therefore, this quality of upper dyads becomes a structural variable of the attitudes, behavior, and exchanges of members. From another perspective, this quality of

upper dyads can be viewed as a major component of the organizational climate of the positions of members. Whether one views the quality of upper dyads as a structural variable or as an organizational climate variable, its contribution to the situation of members in lower dyads is apparent.

Members fortunate enough to be placed in units led by superiors who have developed leadership exchanges with their bosses and hence enriched upper dyads confront less severe problems involving impediments to innovation and change than their less fortunate peers reporting to Out-superiors. It seems reasonable that In-superiors are in positions to make things happen outside of their own units which are adaptive and constitute changes in standard procedures. It may well be that one of the critical functions served by leadership exchange in the upper dyad is adaptation and change. Whereas a boss need not develop leadership exchanges with people who process routine functions and problems using standard procedures (supervision exchange may be adequate), a boss cannot rely upon a "hired-hand" to deal with novel functions and problems requiring new solutions and adaptive procedures--leadership exchange is required.

The findings that members reporting to In-superiors show greater involvement in administrative-decision making activities and that superiors expect this greater involvement suggest that the entire unit of In-superiors may be more oriented to problem solving than other units. Reinforcing this interpretation are the findings on planning activities, although moderately correlated with administrative-decision making activities. At both times, members reporting to In-superiors showed higher involvement in planning and their superior results agreed at time one but not at time three.

The rather consistent findings of disagreement between superiors and their members regarding transactional outcomes deserves comment. Members results show reliable and consistent superiority of members reporting to In-superiors over members reporting to Out-superiors on leadership attention received, leadership support received, work sensitivity by superior, and self-determination or work latitude. In contrast, results on superior reports fail to reveal either reliable or consistent superiority of members reporting to In-superiors over those of Out-superiors. These differences between the two different points of view may indicate the operation of the quality of the upper dyad in the following manner. Although the leaders may attempt to behave toward their members in essentially similar manners, the value of the outcomes they mediate may be quite different depending upon the quality of the upper dyad. For example, leadership support received from an In-superior can be expected to be much more highly valued by a member than that received from an Out-superior. At the extreme, support from an Out-superior may do more harm than good for a member.

The results on bases of influence indicate that In-superiors

compared to Out-superiors employ a wider array of bases than that found in the upper dyad. In the upper dyad, only referent influence demonstrated reliable differences among exchange groups. In the lower dyad, expert and reward showed reliable differences on both superior and member reports and an additional source of influence was found for each point of view.

The attitudinal outcomes related to differences in quality of the upper dyad were those toward the technical competence of the leader and the intrinsic value of the work. Interpersonal relations with the leader also approached significance. This suggests that other factors are operating to influence overall job satisfaction. These factors include the quality of the lower dyad in terms of vertical exchange between leader and member.

CONCLUSIONS

In conclusion, the findings of this study reinforce and extend the evidence which suggests that the quality of the upper dyads contributes to the quality of working life of members of lower dyads. Whether one conceives of this variable as a part of the over-structure of the job situation of members (structural variable) or as a major component of the organizational climate of that position (enriched to deprived), the relationships are clearly demonstrated and extremely stable over time.

The ability of a leader to develop a leadership as opposed to a supervision exchange with his boss well may be one of the keys to effective leadership. A leader who can accomplish this can be expected to have a tremendous advantage over a leader who cannot. Not only will such a leader have greater resources for use within his unit but also such a leader should be an effective linking-pin between upper and lower dyad. Although a leader may be relatively effective in his lower dyads, he may be ineffective as a linking-pin. Clearly, we need to know the content and processes by which vertical dyad linkages are differentiated. We need to acquire the technology to train people in the skills and provide the knowledge necessary to enhance the effectiveness of linking-pins. Without strong relationships in both upper and lower dyads, linking-pins cannot be expected to hold their member components together when placed under severe stress.

Implications for Team Building

Assuming that this team-building model of leadership proves to be valid under further testing, it has implications for training in the skills of team-building both prior to and during the process.

Prior to the process of team-building within a particular managerial unit, at least two elements should be present. The supervisor of the unit should be granted enough influence in the hiring process that he can truly "select" members into his unit. In many cases a supervisor's choice may be quite limited due to factors beyond the control of the parent organization. Civil service rules, for instance have sharply curtailed many managerial hiring prerogatives. Similarly, the stress placed upon minority hiring often decreases the range of choices which a supervisor might have in selecting a team. Given these environmentally imposed restrictions, protecting the remaining range of choice becomes

even more important.

The second element, prior to the beginning of the process, which can be influenced by training concerns personnel planning. One very distinct impression, developed from the interview sessions during this study, was that many managers were so caught up in the present, they rarely considered their future needs for personnel. That is, most of the supervisors had not attempted to locate or develop personnel to step into a position if it were vacated suddenly by a present team member. While some of this lack of search can be attributed to the eventual choice restrictions placed upon supervisors, much can be attributed simply to lack of training in this fundamental aspect of team-building. Supervisors who are able to develop this talent for tracking potential team members can expect much smoother transition, when change becomes necessary, along with reducing the probabilities that the new member will prove to be inadequate. Although this sampling process may be somewhat restricted within formal organizations it is an important factor in the development of managerial teams.

Training may also aid interaction which begins to occur shortly after a member takes a position in the unit. The new subordinate and his supervisor begin their bargaining relationship. When this process is managed properly, by both parties, the result includes, among others, realistic expectations concerning the costs and benefits to be gained in the relationships. Unfortunately, this aspect of the dyadic relationship frequently occurs only in a most subtle way or is totally muddled-through due to the lack of expertise of both parties in this area of interpersonal relationships. Training in this process should include the development of basic interpersonal skills. Without this, bargaining is unlikely to occur at all. It may also include exercises in behavioral contracting. While this particular technique may not be directly implementable on the job, it should increase the awareness of both parties to the fact that they actually do have a wide variety of goods with which to bargain.

REFERENCES

Bock, R. D. Programming Univariate and Multivariate Analysis of Variance. Technometrics, 1963, 5, 95-117.

Campbell, D. T., and J. C. Stanley. Experimental and Quasi-Experimental Designs for Research. Chicago: Rand-McNally, 1963.

Cashman, J., and Graen, G. The nature of leadership in the vertical dyad: The team building process. Organizational Behavior and Human Performance, in press.

Cashman, J., Danseraeu, F., Graen, G., Haga, W. J. Organizational understructure and leadership: A longitudinal investigation of the managerial role making process. Organizational Behavior and Human Performance, in press.

Dansereau, F., G. Graen, and W. J. Haga. "A Vertical Dyad Linkage Approach to Leadership Within Formal Organizations", Organizational Behavior and Human Performance, 1975, 13, 46-78.

Fleishman, E. A., and J. Simmons. "Relationship Between Leadership Patterns and Effectiveness Ratings Among Israeli Foremen," Personnel Psychology, 1970, 23, 169-172.

French, J. R. P., and B. H. Raven. "The Bases of Social Power", in Studies in Social Power, D. Cartwright (Ed.). Ann Arbor: University of Michigan Press, 118-149.

Graen, G. "Role-Making Processes Within Complex Organizations," in Handbook of Industrial and Organizational Psychology, M. D. Dunnette (Ed.). Chicago: Rand-McNally, 1975, Chapter 28, 1241-45.

Graen, G. and Cashman, J. A role making model of leadership in formal organizations: A developmental approach. In Leadership Frontiers, J. G. Hunt and L. L. Larson (Eds.), Kent State University Press: Kent, Ohio, 1975.

Graen, G., F. Dansereau and T. Minami. "Dysfunctional Leadership Styles", Organizational Behavior and Human Performance, 1972, 7, 216-236.

Graen, G., J. B. Orris and T. W. Johnson. "A Developmental Study of the Assimilation of New People into Various Office Worker Roles Within a Large Public University", Journal of Vocational Behavior, 1973, 3, 395-420.

Hays, W. L. Statistics for Psychologists. New York: Holt, Rinehart and Winston, 1963.

Homans, G. C. Social Behavior: Its Elementary Forms. New York: Harcourt Brace and World, Inc., 1961.

Hoppock, R. Job Satisfaction. New York: Harper and Brothers, 1935.

House, R. J. and G. Dessler. "The Path-Goal Theory of Leadership: Some Post Hoc and A Priori Tests", in J. G. Hunt and L. L. Larson (Eds.), Contingency Approaches to Leadership. Carbondale, Illinois: Southern Illinois University Press, 1974, 29-55.

House, R. J., Filley, A. C., and Guyarati, D. N. Leadership style, hierarchical influence and satisfaction of subordinate role expectations: A test of Likert's influence proposition. Journal of Applied Psychology, Vol. 55, pp. 422-432.

Jacobs, T. O. Leadership and Exchange in Formal Organizations. Alexandria Virginia: Human Resources Research Organization, 1971.

Jennings, E. E. The Mobile Manager: A Study of the New Generation of Top Executives. New York: McGraw-Hill, 1967.

Katz, D. and R. L. Kahn. The Social Psychology of Organizations. New York: Wiley, 1966.

Korman, A. K. "Contingency Approaches to Leadership: An Overview", in J. G. Hunt and L. L. Larson (Eds.), Contingency Approaches to Leadership. Carbondale, Illinois: Southern Illinois University Press, 1974, 189-195.

Likert, R. New Patterns of Management. New York: McGraw-Hill, 1961.

Pelz, D. C. Influence: A Key to effective leadership in the first-line supervisor. Personnel, 1952, 9, 3-11

Secord, P. F. and C. W. Backman. "Interpersonal Congruency, Perceived Similarity and Friendship". Sociometry, 1964, 27, 115-127.

Smith, P. C. "The Development of a Method of Measuring Job Satisfaction: The Cornell Studies", in E. A. Fleishman (Ed.), Studies in Personnel and Industrial Psychology. Homewood, Illinois: Dorsey, 1967.

Tannenbaum, A. S. Control in Organizations. New York: McGraw-Hill, 1968.

Thibaut, J. W. and H. H. Kelley. The Social Psychology of Groups. New York: Wiley, 1959.

Wager, L. W. Leadership style, influence, and supervisory role obligations. Administrative Science Quarterly, 1965, 9, 391-420.

Winer, B. J. Statistical Principles in Experimental Designs. New York: McGraw-Hill, 1962.